Figure 1A : General description of the polyphage principle

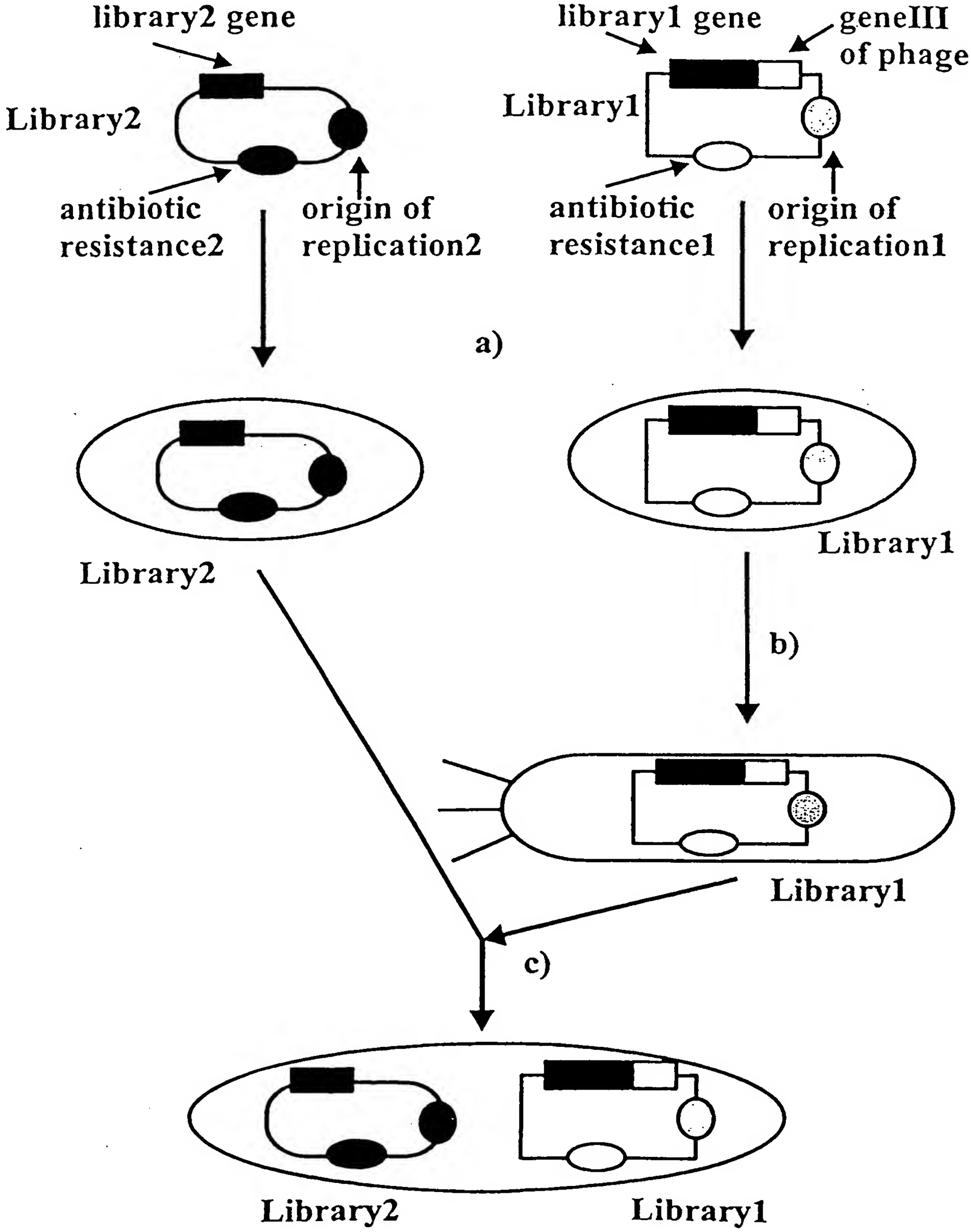

Figure 1B: General description of the polyphage principle (cont.)

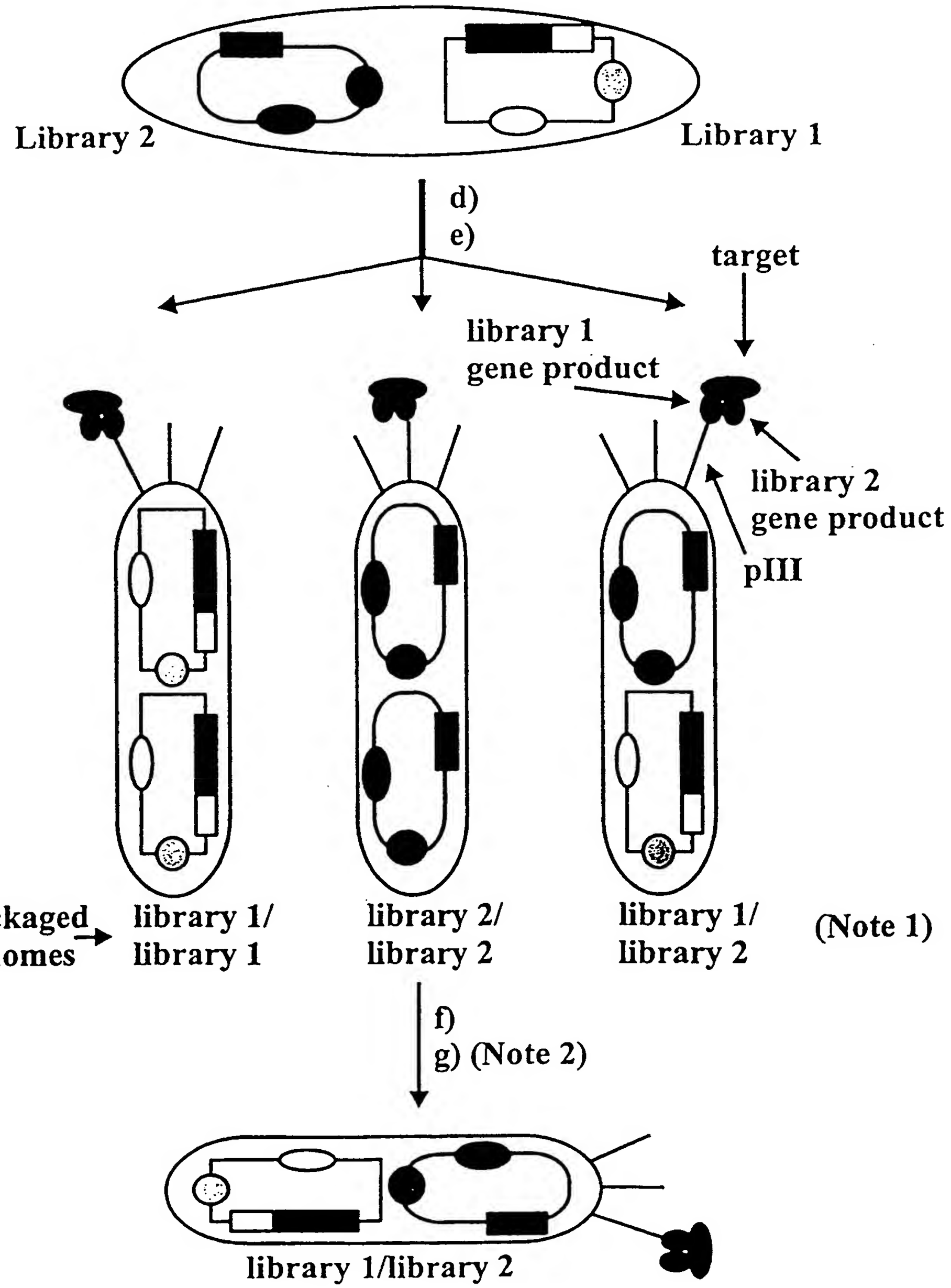

Figure 2A

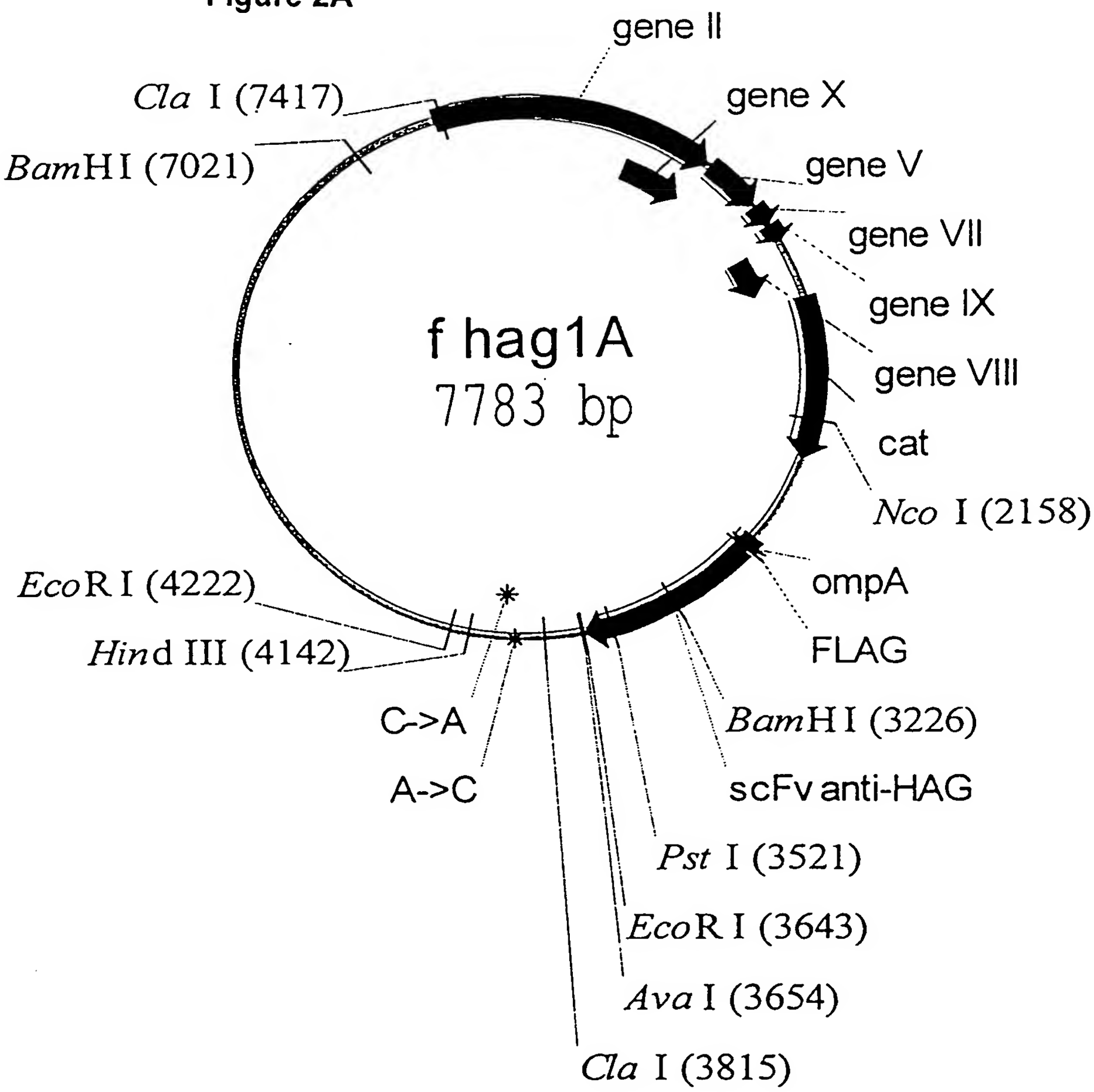
gene II
Cla I (7417)
gene X
BamHI (7021)
gene V
gene VII
gene IX
f hag1A
7783 bp
gene VIII
cat
Nco I (2158)
EcoR I (4222)
ompA
Hind III (4142)
FLAG
C->A
BamH I (3226)
A->C
scFv anti-HAG
Pst I (3521)
EcoR I (3643)
Ava I (3654)
Cla I (3815)

Figure 2B


```
   1  AACGCTACTA CCATTAGTAG AATTGATGCC ACCTTTTCAG CTCGCGCCCC
      TTGCGATGAT GGTAATCATC TTAACTACGG TGGAAAAGTC GAGCGCGGGG

  51  AAATGAAAAT ATAGCTAAAC AGGTTATTGA CCATTTGCGA AATGTATCTA
      TTTACTTTTA TATCGATTTG TCCAATAACT GGTAAACGCT TTACATAGAT

 101  ATGGTCAAAC TAAATCTACT CGTTCGCAGA ATTGGGAATC AACTGTTACA
      TACCAGTTTG ATTTAGATGA GCAAGCGTCT TAACCCTTAG TTGACAATGT

 151  TGGAATGAAA CTTCCAGACA CCGTACTTTA GTTGCATATT TAAAACATGT
      ACCTTACTTT GAAGGTCTGT GGCATGAAAT CAACGTATAA ATTTTGTACA

 201  TGAACTACAG CACCAGATTC AGCAATTAAG CTCTAAGCCA TCCGCAAAAA
      ACTTGATGTC GTGGTCTAAG TCGTTAATTC GAGATTCGGT AGGCGTTTTT

 251  TGACCTCTTA TCAAAAGGAG CAATTAAAGG TACTGTCTAA TCCTGACCTG
      ACTGGAGAAT AGTTTTCCTC GTTAATTTCC ATGACAGATT AGGACTGGAC

 301  TTGGAATTTG CTTCCGGTCT GGTTCGCTTT GAGGCTCGAA TTGAAACGCG
      AACCTTAAAC GAAGGCCAGA CCAAGCGAAA CTCCGAGCTT AACTTTGCGC

 351  ATATTTGAAG TCTTTCGGGC TTCCTCTTAA TCTTTTTGAT GCAATTCGCT
      TATAAACTTC AGAAAGCCCG AAGGAGAATT AGAAAAACTA CGTTAAGCGA

 401  TTGCTTCTGA CTATAATAGA CAGGGTAAAG ACCTGATTTT TGATTTATGG
      AACGAAGACT GATATTATCT GTCCCATTTC TGGACTAAAA ACTAAATACC

 451  TCATTCTCGT TTTCTGAACT GTTTAAAGCA TTTGAGGGGG ATTCAATGAA
      AGTAAGAGCA AAAGACTTGA CAAATTTCGT AAACTCCCCC TAAGTTACTT

 501  TATTTATGAC GATTCCGCAG TATTGGACGC TATCCAGTCT AAACATTTTA
      ATAAATACTG CTAAGGCGTC ATAACCTGCG ATAGGTCAGA TTTGTAAAAT

 551  CAATTACCCC CTCTGGCAAA ACTTCCTTTG CAAAAGCCTC TCGCTATTTT
      GTTAATGGGG GAGACCGTTT TGAAGGAAAC GTTTTCGGAG AGCGATAAAA

 601  GGTTTCTATC GTCGTCTGGT TAATGAGGGT TATGATAGTG TTGCTCTTAC
      CCAAAGATAG CAGCAGACCA ATTACTCCCA ATACTATCAC AACGAGAATG

 651  CATGCCTCGT AATTCCTTTT GGCGTTATGT ATCTGCATTA GTTGAGTGTG
      GTACGGAGCA TTAAGGAAAA CCGCAATACA TAGACGTAAT CAACTCACAC

 701  GTATTCCTAA ATCTCAATTG ATGAATCTTT CCACCTGTAA TAATGTTGTT
      CATAAGGATT TAGAGTTAAC TACTTAGAAA GGTGGACATT ATTACAACAA

 751  CCGTTAGTTC GTTTTATTAA CGTAGATTTT TCCTCCCAAC GTCCTGACTG
      GGCAATCAAG CAAAATAATT GCATCTAAAA AGGAGGGTTG CAGGACTGAC

 801  GTATAATGAG CCAGTTCTTA AAATCGCATA AGGTAATTCA AAATGATTAA
      CATATTACTC GGTCAAGAAT TTTAGCGTAT TCCATTAAGT TTTACTAATT
```

Figure 2C


```
 851  AGTTGAAATT AAACCGTCTC AAGCGCAATT TACTACCCGT TCTGGTGTTT
      TCAACTTTAA TTTGGCAGAG TTCGCGTTAA ATGATGGGCA AGACCACAAA

 901  CTCGTCAGGG CAAGCCTTAT TCACTGAATG AGCAGCTTTG TTACGTTGAT
      GAGCAGTCCC GTTCGGAATA AGTGACTTAC TCGTCGAAAC AATGCAACTA

 951  TTGGGTAATG AATATCCGGT GCTTGTCAAG ATTACTCTCG ACGAAGGTCA
      AACCCATTAC TTATAGGCCA CGAACAGTTC TAATGAGAGC TGCTTCCAGT

1001  GCCAGCGTAT GCGCCTGGTC TGTACACCGT GCATCTGTCC TCGTTCAAAG
      CGGTCGCATA CGCGGACCAG ACATGTGGCA CGTAGACAGG AGCAAGTTTC

1051  TTGGTCAGTT CGGTTCTCTT ATGATTGACC GTCTGCGCCT CGTTCCGGCT
      AACCAGTCAA GCCAAGAGAA TACTAACTGG CAGACGCGGA GCAAGGCCGA

1101  AAGTAACATG GAGCAGGTCG CGGATTTCGA CACAATTTAT CAGGCGATGA
      TTCATTGTAC CTCGTCCAGC GCCTAAAGCT GTGTTAAATA GTCCGCTACT

1151  TACAAATCTC CGTTGTACTT TGTTTCGCGC TTGGTATAAT CGCTGGGGGT
      ATGTTTAGAG GCAACATGAA ACAAAGCGCG AACCATATTA GCGACCCCCA

1201  CAAAGATGAG TGTTTTAGTG TATTCTTTCG CCTCTTTCGT TTTAGGTTGG
      GTTTCTACTC ACAAAATCAC ATAAGAAAGC GGAGAAAGCA AAATCCAACC

1251  TGCCTTCGTA GTGGCATTAC GTATTTTACC CGTTTAATGG AAACTTCCTC
      ACGGAAGCAT CACCGTAATG CATAAAATGG GCAAATTACC TTTGAAGGAG

1301  ATGCGTAAGT CTTTAGTCCT CAAAGCCTCC GTAGCCGTTG CTACCCTCGT
      TACGCATTCA GAAATCAGGA GTTTCGGAGG CATCGGCAAC GATGGGAGCA

1351  TCCGATGCTG TCTTTCGCTG CTGAGGGTGA CGATCCCGCA AAAGCGGCCT
      AGGCTACGAC AGAAAGCGAC GACTCCCACT GCTAGGGCGT TTTCGCCGGA

1401  TTGACTCCCT GCAAGCCTCA GCGACCGAAT ATATCGGTTA TGCGTGGGCG
      AACTGAGGGA CGTTCGGAGT CGCTGGCTTA TATAGCCAAT ACGCACCCGC

1451  ATGGTTGTTG TCATTGTCGG CGCAACTATC GGTATCAAGC TGTTTAAGAA
      TACCAACAAC AGTAACAGCC GCGTTGATAG CCATAGTTCG ACAAATTCTT

1501  ATTCACCTCG AAAGCAAGCT GATAAAGGAG GTTTCTCGAT CGAGACGTTN
      TAAGTGGAGC TTTCGTTCGA CTATTTCCTC CAAAGAGCTA GCTCTGCAAN

1551  NNNGAGGTTC CAACTTTCAC CATAATGAAA TAAGATCACT ACCGGGCGTA
      NNNCTCCAAG GTTGAAAGTG GTATTACTTT ATTCTAGTGA TGGCCCGCAT

1601  TTTTTTGAGT TATCGAGATT TTCAGGAGCT AAGGAAGCTA AAATGGAGAA
      AAAAAACTCA ATAGCTCTAA AAGTCCTCGA TTCCTTCGAT TTTACCTCTT

1651  AAAAATCACT GGATATACCA CCGTTGATAT ATCCCAATGG CATCGTAAAG
      TTTTTAGTGA CCTATATGGT GGCAACTATA TAGGGTTACC GTAGCATTTC
```

Figure 2D


```
1701   AACATTTTGA GGCATTTCAG TCAGTTGCTC AATGTACCTA TAACCAGACC
       TTGTAAAACT CCGTAAAGTC AGTCAACGAG TTACATGGAT ATTGGTCTGG

1751   GTTCAGCTGG ATATTACGGC CTTTTTAAAG ACCGTAAAGA AAAATAAGCA
       CAAGTCGACC TATAATGCCG GAAAAATTTC TGGCATTTCT TTTTATTCGT

1801   CAAGTTTTAT CCGGCCTTTA TTCACATTCT TGCCCGCCTG ATGAATGCTC
       GTTCAAAATA GGCCGGAAAT AAGTGTAAGA ACGGGCGGAC TACTTACGAG

1851   ATCCGGAGTT CCGTATGGCA ATGAAAGACG GTGAGCTGGT GATATGGGAT
       TAGGCCTCAA GGCATACCGT TACTTTCTGC CACTCGACCA CTATACCCTA

1901   AGTGTTCACC CTTGTTACAC CGTTTTCCAT GAGCAAACTG AAACGTTTTC
       TCACAAGTGG GAACAATGTG GCAAAAGGTA CTCGTTTGAC TTTGCAAAAG

1951   ATCGCTCTGG AGTGAATACC ACGACGATTT CCGGCAGTTT CTACACATAT
       TAGCGAGACC TCACTTATGG TGCTGCTAAA GGCCGTCAAA GATGTGTATA

2001   ATTCGCAAGA TGTGGCGTGT TACGGTGAAA ACCTGGCCTA TTTCCCTAAA
       TAAGCGTTCT ACACCGCACA ATGCCACTTT TGGACCGGAT AAAGGGATTT

2051   GGGTTTATTG AGAATATGTT TTTCGTCTCA GCCAATCCCT GGGTGAGTTT
       CCCAAATAAC TCTTATACAA AAAGCAGAGT CGGTTAGGGA CCCACTCAAA

2101   CACCAGTTTT GATTTAAACG TGGCCAATAT GGACAACTTC TTCGCCCCCG
       GTGGTCAAAA CTAAATTTGC ACCGGTTATA CCTGTTGAAG AAGCGGGGGC

                 NcoI
               -------
2151   TTTTCACCAT GGGCAAATAT TATACGCAAG GCGACAAGGT GCTGATGCCG
       AAAAGTGGTA CCCGTTTATA ATATGCGTTC CGCTGTTCCA CGACTACGGC

2201   CTGGCGATTC AGGTTCATCA TGCCGTCTGT GATGGCTTCC ATGTCGGCAG
       GACCGCTAAG TCCAAGTAGT ACGGCAGACA CTACCGAAGG TACAGCCGTC

2251   AATGCTTAAT GAATTACAAC AGTACTGCGA TGAGTGGCAG GGCGGGGCGT
       TTACGAATTA CTTAATGTTG TCATGACGCT ACTCACCGTC CCGCCCCGCA

2301   AATTTTTTTA AGGCAGTTAT TGGTGCCCTT AAACGCCTGG TGCTACGCCT
       TTAAAAAAAT TCCGTCAATA ACCACGGGAA TTTGCGGACC ACGATGCGGA

2351   GAATAAGTGA TAATAAGCGG ATGAATGGCA GAAATTCGAA AGCAAATTCG
       CTTATTCACT ATTATTCGCC TACTTACCGT CTTTAAGCTT TCGTTTAAGC

2401   ACCCGGTCGT CGGTTCAGGG CAGGGTCGTT AAATAGCCGC TTATGTCTAT
       TGGGCCAGCA GCCAAGTCCC GTCCCAGCAA TTTATCGGCG AATACAGATA

2451   TGCTGGTTTA CCGGTTTATT GACTACCGGA AGCAGTGTGA CCGTGTGCTT
       ACGACCAAAT GGCCAAATAA CTGATGGCCT TCGTCACACT GGCACACGAA

2501   CTCAAATGCC TGAGGCCAGT TTGCTCAGGC TCTCCCCGTG GAGGTAATAA
       GAGTTTACGG ACTCCGGTCA AACGAGTCCG AGAGGGGCAC CTCCATTATT
```

Figure 2E


```
2551  TTGCTCGACC GATAAAAGCG GCTTCCTGAC AGGAGGCCGT TTTGTTTTGC
      AACGAGCTGG CTATTTTCGC CGAAGGACTG TCCTCCGGCA AAACAAAACG

2601  AGCCCACCTC AACGCAATTA ATGTGAGTTA GCTCACTCAT TAGGCACCCC
      TCGGGTGGAG TTGCGTTAAT TACACTCAAT CGAGTGAGTA ATCCGTGGGG

2651  AGGCTTTACA CTTTATGCTT CCGGCTCGTA TGTTGTGTGG AATTGTGAGC
      TCCGAAATGT GAAATACGAA GGCCGAGCAT ACAACACACC TTAACACTCG

2701  GGATAACAAT TTCACACAGG AAACAGCTAT GACCATGATT ACGAATTTCT
      CCTATTGTTA AAGTGTGTCC TTTGTCGATA CTGGTACTAA TGCTTAAAGA

2751  AGATAACGAG GGCAAATCAT GAAAAAGACA GCTATCGCGA TTGCAGTGGC
      TCTATTGCTC CCGTTTAGTA CTTTTTCTGT CGATAGCGCT AACGTCACCG

2801  ACTGGCTGGT TTCGCTACCG TAGCGCAGGC CGACTACAAA GATATCGTTA
      TGACCGACCA AAGCGATGGC ATCGCGTCCG GCTGATGTTT CTATAGCAAT

2851  TGACCCAGTC ACCGTCCTCC CTGACCGTTA CCGCTGGTGA AAAAGTTACC
      ACTGGGTCAG TGGCAGGAGG GACTGGCAAT GGCGACCACT TTTTCAATGG

2901  ATGTCCTGCA CCTCCTCCCA GTCCCTGTTC AACTCCGGTA AACAGAAAAA
      TACAGGACGT GGAGGAGGGT CAGGGACAAG TTGAGGCCAT TTGTCTTTTT

2951  CTACCTGACC TGGTATCAGC AGAAACCGGG TCAGCCACCG AAAGTTCTGA
      GATGGACTGG ACCATAGTCG TCTTTGGCCC AGTCGGTGGC TTTCAAGACT

3001  TCTACTGGGC TTCCACCCGT GAATCCGGTG TTCCAGACCG TTTCACCGGT
      AGATGACCCG AAGGTGGGCA CTTAGGCCAC AAGGTCTGGC AAAGTGGCCA

3051  TCCGGTTCCG GCACCGACTT CACCCTGACC ATCTCCTCCG TTCAGGCTGA
      AGGCCAAGGC CGTGGCTGAA GTGGGACTGG TAGAGGAGGC AAGTCCGACT

3101  AGACCTGGCT GTTTACTACT GCCAGAACGA CTACTCCAAC CCACTGACCT
      TCTGGACCGA CAAATGATGA CGGTCTTGCT GATGAGGTTG GGTGACTGGA

3151  TCGGTGGTGG CACCAAACTG GAACTTAAGC GCGCTGGTGG TGGAGGGTCT
      AGCCACCACC GTGGTTTGAC CTTGAATTCG CGCGACCACC ACCTCCCAGA

                                        BamHI
                                       -------
3201  GGAGGAGGTG GGAGTGGGGG AGGTGGATCC GGCGGGGGAG GTTCAGGGGG
      CCTCCTCCAC CCTCACCCCC TCCACCTAGG CCGCCCCCTC CAAGTCCCCC

3251  TGGCGGTAGT GGAGGGGGCG GTTCAGAAGT TCAACTAGTT GAATCCGGTG
      ACCGCCATCA CCTCCCCCGC CAAGTCTTCA AGTTGATCAA CTTAGGCCAC

3301  GTGACCTGGT TAAACCGGGT GGTTCCCTGA AACTGTCCTG CGCTGCTTCC
      CACTGGACCA ATTTGGCCCA CCAAGGGACT TTGACAGGAC GCGACGAAGG
```

Figure 2F


```
3351   GGTTTCTCCT TCTCCTCCTA CGGTATGTCC TGGGTTCGTC AGACCCCGGA
       CCAAAGAGGA AGAGGAGGAT GCCATACAGG ACCCAAGCAG TCTGGGGCCT

3401   CAAACGTCTG GAATGGGTTG CTACCATCTC CAACGGTGGT GGTTACACCT
       GTTTGCAGAC CTTACCCAAC GATGGTAGAG GTTGCCACCA CCAATGTGGA

3451   ACTACCCGGA CTCCGTTAAA GGTCGTTTCA CCATCTCCCG TGACAACGCT
       TGATGGGCCT GAGGCAATTT CCAGCAAAGT GGTAGAGGGC ACTGTTGCGA

                          PstI
                         -------
3501   AAAAACACCC TGTACCTGCA GATGTCCTCC CTGAAATCCG AAGACTCAGC
       TTTTTGTGGG ACATGGACGT CTACAGGAGG GACTTTAGGC TTCTGAGTCG

3551   TATGTACTAC TGCGCTCGTC GTGAACGTTA CGACGAAAAC GGTTTCGCTT
       ATACATGATG ACGCGAGCAG CACTTGCAAT GCTGCTTTTG CCAAAGCGAA

                                                    EcoRI
                                                   ------
3601   ACTGGGGTCA GGGTACCCTG GTTACCGTTT CAGCTTCCGG AGAATTCGAG
       TGACCCCAGT CCCATGGGAC CAATGGCAAA GTCGAAGGCC TCTTAAGCTC

          AvaI
         ------
3651   GCCTCGGGGG CCGAGGGCGG CGGTTCTGGT TCCGGTGATT TTGATTATGA
       CGGAGCCCCC GGCTCCCGCC GCCAAGACCA AGGCCACTAA AACTAATACT

3701   AAAAATGGCA AACGCTAATA AGGGGGCTAT GACCGAAAAT GCCGATGAAA
       TTTTTACCGT TTGCGATTAT TCCCCCGATA CTGGCTTTTA CGGCTACTTT

3751   ACGCGCTACA GTCTGACGCT AAAGGCAAAC TTGATTCTGT CGCTACTGAT
       TGCGCGATGT CAGACTGCGA TTTCCGTTTG AACTAAGACA GCGATGACTA

                          ClaI
                         -------
3801   TACGGTGCTG CTATCGATGG TTTCATTGGT GACGTTTCCG GCCTTGCTAA
       ATGCCACGAC GATAGCTACC AAAGTAACCA CTGCAAAGGC CGGAACGATT

3851   TGGTAATGGT GCTACTGGTG ATTTTGCTGG CTCTAATTCC CAAATGGCTC
       ACCATTACCA CGATGACCAC TAAAACGACC GAGATTAAGG GTTTACCGAG

3901   AAGTCGGTGA CGGTGATAAT TCACCTTTAA TGAATAATTT CCGTCAATAT
       TTCAGCCACT GCCACTATTA AGTGGAAATT ACTTATTAAA GGCAGTTATA

3951   TTACCTTCCC TCCCTCAATC GGTTGAATGT CGCCCTTTTG TCTTTGGCGC
       AATGGAAGGG AGGGAGTTAG CCAACTTACA GCGGGAAAAC AGAAACCGCG

4001   TGGTAAACCA TATGAATTTT CTATTGATTG TGACAAAATA AACTTATTCC
       ACCATTTGGT ATACTTAAAA GATAACTAAC ACTGTTTTAT TTGAATAAGG

4051   GTGGTGTCTT TGCGTTTCTT TTATATGTTG CCACCTTTAT GTATGTATTT
       CACCACAGAA ACGCAAAGAA AATATACAAC GGTGGAAATA CATACATAAA
```

Figure 2G

HindIII

```
4101  TCTACGTTTG CTAACATACT GCGTAATAAG GAGTCTTGAT AAGCTTCGAG
      AGATGCAAAC GATTGTATGA CGCATTATTC CTCAGAACTA TTCGAAGCTC

4151  AAATTCACCT CGAAAGCAAG CTGATAAACC GATACAATTA AAGGCTCCTT
      TTTAAGTGGA GCTTTCGTTC GACTATTTGG CTATGTTAAT TTCCGAGGAA
```

EcoRI

```
4201  TTGGAGCCTT TTTTTTGGA GAATTCAATC ATGCCAGTTC TTTTGGGTAT
      AACCTCGGAA AAAAAAACCT CTTAAGTTAG TACGGTCAAG AAAACCCATA

4251  TCCGTTATTA TTGCGTTTCC TCGGTTTCCT TCTGGTAACT TTGTTCGGCT
      AGGCAATAAT AACGCAAAGG AGCCAAAGGA AGACCATTGA AACAAGCCGA

4301  ATCTGCTTAC TTTCCTTAAA AAGGGCTTCG GTAAGATAGC TATTGCTATT
      TAGACGAATG AAAGGAATTT TTCCCGAAGC CATTCTATCG ATAACGATAA

4351  TCATTGTTTC TTGCTCTTAT TATTGGGCTT AACTCAATTC TTGTGGGTTA
      AGTAACAAAG AACGAGAATA ATAACCCGAA TTGAGTTAAG AACACCCAAT

4401  TCTCTCTGAT ATTAGCGCAC AATTACCCTC TGATTTTGTT CAGGGCGTTC
      AGAGAGACTA TAATCGCGTG TTAATGGGAG ACTAAAACAA GTCCCGCAAG

4451  AGTTAATTCT CCCGTCTAAT GCGCTTCCCT GTTTTTATGT TATTCTCTCT
      TCAATTAAGA GGGCAGATTA CGCGAAGGGA CAAAAATACA ATAAGAGAGA

4501  GTAAAGGCTG CTATTTTCAT TTTTGACGTT AAACAAAAAA TCGTTTCTTA
      CATTTCCGAC GATAAAAGTA AAAACTGCAA TTTGTTTTTT AGCAAAGAAT

4551  TTTGGATTGG GATAAATAAA TATGGCTGTT TATTTTGTAA CTGGCAAATT
      AAACCTAACC CTATTTATTT ATACCGACAA ATAAAACATT GACCGTTTAA

4601  AGGCTCTGGA AAGACGCTCG TTAGCGTTGG TAAGATTCAG GATAAAATTG
      TCCGAGACCT TTCTGCGAGC AATCGCAACC ATTCTAAGTC CTATTTTAAC

4651  TAGCTGGGTG CAAAATAGCA ACTAATCTTG ATTTAAGGCT TCAAAACCTC
      ATCGACCCAC GTTTTATCGT TGATTAGAAC TAAATTCCGA AGTTTTGGAG

4701  CCGCAAGTCG GGAGGTTCGC TAAAACGCCT CGCGTTCTTA GAATACCGGA
      GGCGTTCAGC CCTCCAAGCG ATTTTGCGGA GCGCAAGAAT CTTATGGCCT

4751  TAAGCCTTCT ATTTCTGATT TGCTTGCTAT TGGTCGTGGT AATGATTCCT
      ATTCGGAAGA TAAAGACTAA ACGAACGATA ACCAGCACCA TTACTAAGGA

4801  ACGACGAAAA TAAAAACGGT TTGCTTGTTC TTGATGAATG CGGTACTTGG
      TGCTGCTTTT ATTTTTGCCA AACGAACAAG AACTACTTAC GCCATGAACC

4851  TTTAATACCC GTTCATGGAA TGACAAGGAA AGACAGCCGA TTATTGATTG
      AAATTATGGG CAAGTACCTT ACTGTTCCTT TCTGTCGGCT AATAACTAAC
```

Figure 2H


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4901   GTTTCTTCAT GCTCGTAAAT TGGGATGGGA TATTATTTTT CTTGTTCAGG
       CAAAGAAGTA CGAGCATTTA ACCCTACCCT ATAATAAAAA GAACAAGTCC

4951   ATTTATCTAT TGTTGATAAA CAGGCGCGTT CTGCATTAGC TGAACACGTT
       TAAATAGATA ACAACTATTT GTCCGCGCAA GACGTAATCG ACTTGTGCAA

5001   GTTTATTGTC GCCGTCTGGA CAGAATTACT TTACCCTTTG TCGGCACTTT
       CAAATAACAG CGGCAGACCT GTCTTAATGA AATGGGAAAC AGCCGTGAAA

5051   ATATTCTCTT GTTACTGGCT CAAAAATGCC TCTGCCTAAA TTACATGTTG
       TATAAGAGAA CAATGACCGA GTTTTTACGG AGACGGATTT AATGTACAAC

5101   GTGTTGTTAA ATATGGTGAT TCTCAATTAA GCCCTACTGT TGAGCGTTGG
       CACAACAATT TATACCACTA AGAGTTAATT CGGGATGACA ACTCGCAACC

5151   CTTTATACTG GTAAGAATTT ATATAACGCA TATGACACTA AACAGGCTTT
       GAAATATGAC CATTCTTAAA TATATTGCGT ATACTGTGAT TTGTCCGAAA

5201   TTCCAGTAAT TATGATTCAG GTGTTTATTC ATATTTAACC CCTTATTTAT
       AAGGTCATTA ATACTAAGTC CACAAATAAG TATAAATTGG GGAATAAATA

5251   CACACGGTCG GTATTTCAAA CCATTAAATT TAGGTCAGAA GATGAAATTA
       GTGTGCCAGC CATAAAGTTT GGTAATTTAA ATCCAGTCTT CTACTTTAAT

5301   ACTAAAATAT ATTTGAAAAA GTTTTCTCGC GTTCTTTGTC TTGCGATAGG
       TGATTTTATA TAAACTTTTT CAAAAGAGCG CAAGAAACAG AACGCTATCC

5351   ATTTGCATCA GCATTTACAT ATAGTTATAT AACCCAACCT AAGCCGGAGG
       TAAACGTAGT CGTAAATGTA TATCAATATA TTGGGTTGGA TTCGGCCTCC

5401   TTAAAAAGGT AGTCTCTCAG ACCTATGATT TTGATAAATT CACTATTGAC
       AATTTTTCCA TCAGAGAGTC TGGATACTAA AACTATTTAA GTGATAACTG

5451   TCTTCTCAGC GTCTTAATCT AAGCTATCGC TATGTTTTCA AGGATTCTAA
       AGAAGAGTCG CAGAATTAGA TTCGATAGCG ATACAAAAGT TCCTAAGATT

5501   GGGAAAATTA ATTAATAGCG ACGATTTACA GAAGCAAGGT TATTCCATCA
       CCCTTTTAAT TAATTATCGC TGCTAAATGT CTTCGTTCCA ATAAGGTAGT

5551   CATATATTGA TTTATGTACT GTTTCAATTA AAAAAGGTAA TTCAAATGAA
       GTATATAACT AAATACATGA CAAAGTTAAT TTTTTCCATT AAGTTTACTT

5601   ATTGTTAAAT GTAATTAATT TTGTTTTCTT GATGTTTGTT TCATCATCTT
       TAACAATTTA CATTAATTAA AACAAAAGAA CTACAAACAA AGTAGTAGAA

5651   CTTTTGCTCA AGTAATTGAA ATGAATAATT CGCCTCTGCG CGATTTCGTG
       GAAAACGAGT TCATTAACTT TACTTATTAA GCGGAGACGC GCTAAAGCAC

5701   ACTTGGTATT CAAAGCAAAC AGGTGAATCT GTTATTGTCT CACCTGATGT
       TGAACCATAA GTTTCGTTTG TCCACTTAGA CAATAACAGA GTGGACTACA
```

Figure 2I


```
5751   TAAAGGTACA GTGACTGTAT ATTCCTCTGA CGTTAAGCCT GAAAATTTAC
       ATTTCCATGT CACTGACATA TAAGGAGACT GCAATTCGGA CTTTTAAATG

5801   GCAATTTCTT TATCTCTGTT TTACGTGCTA ATAATTTTGA TATGGTTGGC
       CGTTAAAGAA ATAGAGACAA AATGCACGAT TATTAAAACT ATACCAACCG

5851   TCAATTCCTT CCATAATTCA GAAATATAAC CCAAATAGTC AGGATTATAT
       AGTTAAGGAA GGTATTAAGT CTTTATATTG GGTTTATCAG TCCTAATATA

5901   TGATGAATTG CCATCATCTG ATATTCAGGA ATATGATGAT AATTCCGCTC
       ACTACTTAAC GGTAGTAGAC TATAAGTCCT TATACTACTA TTAAGGCGAG

5951   CTTCTGGTGG TTTCTTTGTT CCGCAAAATG ATAATGTTAC TCAAACATTT
       GAAGACCACC AAAGAAACAA GGCGTTTTAC TATTACAATG AGTTTGTAAA

6001   AAAATTAATA ACGTTCGCGC AAAGGATTTA ATAAGGGTTG TAGAATTGTT
       TTTTAATTAT TGCAAGCGCG TTTCCTAAAT TATTCCCAAC ATCTTAACAA

6051   TGTTAAATCT AATACATCTA AATCCTCAAA TGTATTATCT GTTGATGGTT
       ACAATTTAGA TTATGTAGAT TTAGGAGTTT ACATAATAGA CAACTACCAA

6101   CTAACTTATT AGTAGTTAGC GCCCCTAAAG ATATTTTAGA TAACCTTCCG
       GATTGAATAA TCATCAATCG CGGGGATTTC TATAAAATCT ATTGGAAGGC

6151   CAATTTCTTT CTACTGTTGA TTTGCCAACT GACCAGATAT TGATTGAAGG
       GTTAAAGAAA GATGACAACT AAACGGTTGA CTGGTCTATA ACTAACTTCC

6201   ATTAATTTTC GAGGTTCAGC AAGGTGATGC TTTAGATTTT TCCTTTGCTG
       TAATTAAAAG CTCCAAGTCG TTCCACTACG AAATCTAAAA AGGAAACGAC

6251   CTGGCTCTCA GCGCGGCACT GTTGCTGGTG GTGTTAATAC TGACCGTCTA
       GACCGAGAGT CGCGCCGTGA CAACGACCAC CACAATTATG ACTGGCAGAT

6301   ACCTCTGTTT TATCTTCTGC GGGTGGTTCG TTCGGTATTT TTAACGGCGA
       TGGAGACAAA ATAGAAGACG CCCACCAAGC AAGCCATAAA AATTGCCGCT

6351   TGTTTTAGGG CTATCAGTTC GCGCATTAAA GACTAATAGC CATTCAAAAA
       ACAAAATCCC GATAGTCAAG CGCGTAATTT CTGATTATCG GTAAGTTTTT

6401   TATTGTCTGT GCCTCGTATT CTTACGCTTT CAGGTCAGAA GGGTTCTATT
       ATAACAGACA CGGAGCATAA GAATGCGAAA GTCCAGTCTT CCCAAGATAA

6451   TCTGTTGGCC AGAATGTCCC TTTTATTACT GGTCGTGTAA CTGGTGAATC
       AGACAACCGG TCTTACAGGG AAAATAATGA CCAGCACATT GACCACTTAG

6501   TGCCAATGTA AATAATCCAT TTCAGACGGT TGAGCGTCAA AATGTTGGTA
       ACGGTTACAT TTATTAGGTA AAGTCTGCCA ACTCGCAGTT TTACAACCAT

6551   TTTCTATGAG TGTTTTTCCC GTTGCAATGG CTGGCGGTAA TATTGTTTTA
       AAAGATACTC ACAAAAAGGG CAACGTTACC GACCGCCATT ATAACAAAAT
```

Figure 2J


```
6601   GATATAACCA GTAAGGCCGA TAGTTTGAGT TCTTCTACTC AGGCAAGTGA
       CTATATTGGT CATTCCGGCT ATCAAACTCA AGAAGATGAG TCCGTTCACT

6651   TGTTATTACT AATCAAAGAA GTATTGCGAC AACGGTTAAT TTGCGTGATG
       ACAATAATGA TTAGTTTCTT CATAACGCTG TTGCCAATTA AACGCACTAC

6701   GTCAGACTCT TTTGCTCGGT GGCCTCACTG ATTACAAAAA CACTTCTCAA
       CAGTCTGAGA AAACGAGCCA CCGGAGTGAC TAATGTTTTT GTGAAGAGTT

6751   GATTCTGGTG TGCCGTTCCT GTCTAAAATC CCTTTAATCG GCCTCCTGTT
       CTAAGACCAC ACGGCAAGGA CAGATTTTAG GGAAATTAGC CGGAGGACAA

6801   TAGCTCCCGT TCTGATTCTA ACGAGGAAAG CACGTTGTAC GTGCTCGTCA
       ATCGAGGGCA AGACTAAGAT TGCTCCTTTC GTGCAACATG CACGAGCAGT

6851   AAGCAACCAT AGTACGCGCC CTGTAGCGGC GCATTAAGCG CGGCGGGTGT
       TTCGTTGGTA TCATGCGCGG GACATCGCCG CGTAATTCGC GCCGCCCACA

6901   GGTGGTTACG CGCAGCGTGA CCGCTACACT TGCCAGCGCC CTAGCGCCCG
       CCACCAATGC GCGTCGCACT GGCGATGTGA ACGGTCGCGG GATCGCGGGC

6951   CTCCTTTCGC TTTCTTCCCT TCCTTTCTCG CCACGTTCTC CGGCTTTCCC
       GAGGAAAGCG AAAGAAGGGA AGGAAAGAGC GGTGCAAGAG GCCGAAAGGG

                                BamHI
                              --------
7001   CGTCAAGCTC TAAATCGGGG GATCCCTTTA GGGTTCCGAT TTAGTGCTTT
       GCAGTTCGAG ATTTAGCCCC CTAGGGAAAT CCCAAGGCTA AATCACGAAA

7051   ACGGCACCTC GACCTCCAAA AACTTGATTT GGGTGATGGT TCACGTAGTG
       TGCCGTGGAG CTGGAGGTTT TTGAACTAAA CCCACTACCA AGTGCATCAC

7101   GGCCATCGCC CTGATAGACG GTTTTTCGCC CTTTGACGTT GGAGTCCACG
       CCGGTAGCGG GACTATCTGC CAAAAAGCGG GAAACTGCAA CCTCAGGTGC

7151   TTCTTTAATA GTGGACTCTT GTTCCAAACT GGAACAACAC TCACAACTAA
       AAGAAATTAT CACCTGAGAA CAAGGTTTGA CCTTGTTGTG AGTGTTGATT

7201   CTCGGCCTAT TCTTTTGATT TATAAGGATT TTTGTCATTT TCTGCTTACT
       GAGCCGGATA AGAAAACTAA ATATTCCTAA AAACAGTAAA AGACGAATGA

7251   GGTTAAAAAA TAAGCTGATT TAACAAATAT TTAACGCGAA ATTTAACAAA
       CCAATTTTTT ATTCGACTAA ATTGTTTATA AATTGCGCTT TAAATTGTTT

7301   ACATTAACGT TTACAATTTA AATATTTGCT TATACAATCA TCCTGTTTTT
       TGTAATTGCA AATGTTAAAT TTATAAACGA ATATGTTAGT AGGACAAAAA

7351   GGGGCTTTTC TGATTATCAA CCGGGGTACA TATGATTGAC ATGCTAGTTT
       CCCCGAAAAG ACTAATAGTT GGCCCCATGT ATACTAACTG TACGATCAAA
```

Figure 2K

ClaI

```
7401   TACGATTACC GTTCATCGAT TCTCTTGTTT GCTCCAGACT TTCAGGTAAT
       ATGCTAATGG CAAGTAGCTA AGAGAACAAA CGAGGTCTGA AAGTCCATTA

7451   GACCTGATAG CCTTTGTAGA CCTCTCAAAA ATAGCTACCC TCTCCGGCAT
       CTGGACTATC GGAAACATCT GGAGAGTTTT TATCGATGGG AGAGGCCGTA

7501   GAATTTATCA GCTAGAACGG TTGAATATCA TATTGACGGT GATTTGACTG
       CTTAAATAGT CGATCTTGCC AACTTATAGT ATAACTGCCA CTAAACTGAC

7551   TCTCCGGCCT TTCTCACCCG TTTGAATCTT TGCCTACTCA TTACTCCGGC
       AGAGGCCGGA AAGAGTGGGC AAACTTAGAA ACGGATGAGT AATGAGGCCG

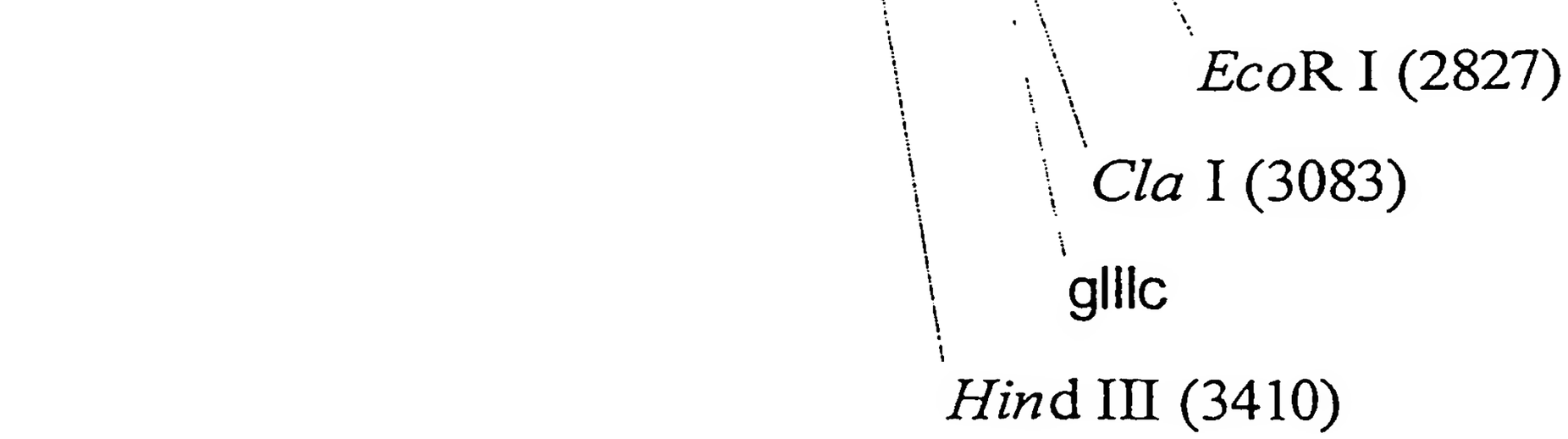
7601   ATTGCATTTA AAATATATGA GGGTTCTAAA AATTTTTATC CCTGCGTTGA
       TAACGTAAAT TTTATATACT CCCAAGATTT TTAAAAATAG GGACGCAACT

7651   AATTAAGGCT TCACCAGCAA AAGTATTACA GGGTCATAAT GTTTTTGGTA
       TTAATTCCGA AGTGGTCGTT TTCATAATGT CCCAGTATTA CAAAAACCAT

7701   CAACCGATTT AGCTTTATGC TCTGAGGCTT TATTGCTTAA TTTTGCTAAC
       GTTGGCTAAA TCGAAATACG AGACTCCGAA ATAACGAATT AAAACGATTG

7751   TCTCTGCCTT GCTTGTACGA TTTATTGGAT GTT
       AGAGACGGAA CGAACATGCT AAATAACCTA CAA
```

Figure 3A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BamH I (6293)
gene II
gene X
gene V
gene VII
gene IX
gene VIII
ompA
FLAG
jun
EcoR I (2827)
Cla I (3083)
gIIIc
Hind III (3410)
f jun1B-seq
7055 bp

Figure 3B


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   1  AACGCTACTA CCATTAGTAG AATTGATGCC ACCTTTTCAG CTCGCGCCCC
      TTGCGATGAT GGTAATCATC TTAACTACGG TGGAAAAGTC GAGCGCGGGG

  51  AAATGAAAAT ATAGCTAAAC AGGTTATTGA CCATTTGCGA AATGTATCTA
      TTTACTTTTA TATCGATTTG TCCAATAACT GGTAAACGCT TTACATAGAT

 101  ATGGTCAAAC TAAATCTACT CGTTCGCAGA ATTGGGAATC AACTGTTACA
      TACCAGTTTG ATTTAGATGA GCAAGCGTCT TAACCCTTAG TTGACAATGT

 151  TGGAATGAAA CTTCCAGACA CCGTACTTTA GTTGCATATT TAAAACATGT
      ACCTTACTTT GAAGGTCTGT GGCATGAAAT CAACGTATAA ATTTTGTACA

 201  TGAACTACAG CACCAGATTC AGCAATTAAG CTCTAAGCCA TCCGCAAAAA
      ACTTGATGTC GTGGTCTAAG TCGTTAATTC GAGATTCGGT AGGCGTTTTT

 251  TGACCTCTTA TCAAAAGGAG CAATTAAAGG TACTGTCTAA TCCTGACCTG
      ACTGGAGAAT AGTTTTCCTC GTTAATTTCC ATGACAGATT AGGACTGGAC

 301  TTGGAATTTG CTTCCGGTCT GGTTCGCTTT GAGGCTCGAA TTGAAACGCG
      AACCTTAAAC GAAGGCCAGA CCAAGCGAAA CTCCGAGCTT AACTTTGCGC

 351  ATATTTGAAG TCTTTCGGGC TTCCTCTTAA TCTTTTTGAT GCAATTCGCT
      TATAAACTTC AGAAAGCCCG AAGGAGAATT AGAAAAACTA CGTTAAGCGA

 401  TTGCTTCTGA CTATAATAGA CAGGGTAAAG ACCTGATTTT TGATTTATGG
      AACGAAGACT GATATTATCT GTCCCATTTC TGGACTAAAA ACTAAATACC

 451  TCATTCTCGT TTTCTGAACT GTTTAAAGCA TTTGAGGGGG ATTCAATGAA
      AGTAAGAGCA AAAGACTTGA CAAATTTCGT AAACTCCCCC TAAGTTACTT

 501  TATTTATGAC GATTCCGCAG TATTGGACGC TATCCAGTCT AAACATTTTA
      ATAAATACTG CTAAGGCGTC ATAACCTGCG ATAGGTCAGA TTTGTAAAAT

 551  CAATTACCCC CTCTGGCAAA ACTTCCTTTG CAAAAGCCTC TCGCTATTTT
      GTTAATGGGG GAGACCGTTT TGAAGGAAAC GTTTTCGGAG AGCGATAAAA

 601  GGTTTCTATC GTCGTCTGGT TAATGAGGGT TATGATAGTG TTGCTCTTAC
      CCAAAGATAG CAGCAGACCA ATTACTCCCA ATACTATCAC AACGAGAATG

 651  CATGCCTCGT AATTCCTTTT GGCGTTATGT ATCTGCATTA GTTGAGTGTG
      GTACGGAGCA TTAAGGAAAA CCGCAATACA TAGACGTAAT CAACTCACAC

 701  GTATTCCTAA ATCTCAATTG ATGAATCTTT CCACCTGTAA TAATGTTGTT
      CATAAGGATT TAGAGTTAAC TACTTAGAAA GGTGGACATT ATTACAACAA

 751  CCGTTAGTTC GTTTTATTAA CGTAGATTTT TCCTCCCAAC GTCCTGACTG
      GGCAATCAAG CAAAATAATT GCATCTAAAA AGGAGGGTTG CAGGACTGAC

 801  GTATAATGAG CCAGTTCTTA AAATCGCATA AGGTAATTCA AAATGATTAA
      CATATTACTC GGTCAAGAAT TTTAGCGTAT TCCATTAAGT TTTACTAATT
```

Figure 3C


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 851  AGTTGAAATT AAACCGTCTC AAGCGCAATT TACTACCCGT TCTGGTGTTT
      TCAACTTTAA TTTGGCAGAG TTCGCGTTAA ATGATGGGCA AGACCACAAA

 901  CTCGTCAGGG CAAGCCTTAT TCACTGAATG AGCAGCTTTG TTACGTTGAT
      GAGCAGTCCC GTTCGGAATA AGTGACTTAC TCGTCGAAAC AATGCAACTA

 951  TTGGGTAATG AATATCCGGT GCTTGTCAAG ATTACTCTCG ACGAAGGTCA
      AACCCATTAC TTATAGGCCA CGAACAGTTC TAATGAGAGC TGCTTCCAGT

1001  GCCAGCGTAT GCGCCTGGTC TGTACACCGT GCATCTGTCC TCGTTCAAAG
      CGGTCGCATA CGCGGACCAG ACATGTGGCA CGTAGACAGG AGCAAGTTTC

1051  TTGGTCAGTT CGGTTCTCTT ATGATTGACC GTCTGCGCCT CGTTCCGGCT
      AACCAGTCAA GCCAAGAGAA TACTAACTGG CAGACGCGGA GCAAGGCCGA

1101  AAGTAACATG GAGCAGGTCG CGGATTTCGA CACAATTTAT CAGGCGATGA
      TTCATTGTAC CTCGTCCAGC GCCTAAAGCT GTGTTAAATA GTCCGCTACT

1151  TACAAATCTC CGTTGTACTT TGTTTCGCGC TTGGTATAAT CGCTGGGGGT
      ATGTTTAGAG GCAACATGAA ACAAAGCGCG AACCATATTA GCGACCCCCA

1201  CAAAGATGAG TGTTTTAGTG TATTCTTTCG CCTCTTTCGT TTTAGGTTGG
      GTTTCTACTC ACAAAATCAC ATAAGAAAGC GGAGAAAGCA AAATCCAACC

1251  TGCCTTCGTA GTGGCATTAC GTATTTTACC CGTTTAATGG AAACTTCCTC
      ACGGAAGCAT CACCGTAATG CATAAAATGG GCAAATTACC TTTGAAGGAG

1301  ATGCGTAAGT CTTTAGTCCT CAAAGCCTCC GTAGCCGTTG CTACCCTCGT
      TACGCATTCA GAAATCAGGA GTTTCGGAGG CATCGGCAAC GATGGGAGCA

1351  TCCGATGCTG TCTTTCGCTG CTGAGGGTGA CGATCCCGCA AAAGCGGCCT
      AGGCTACGAC AGAAAGCGAC GACTCCCACT GCTAGGGCGT TTTCGCCGGA

1401  TTGACTCCCT GCAAGCCTCA GCGACCGAAT ATATCGGTTA TGCGTGGGCG
      AACTGAGGGA CGTTCGGAGT CGCTGGCTTA TATAGCCAAT ACGCACCCGC

1451  ATGGTTGTTG TCATTGTCGG CGCAACTATC GGTATCAAGC TGTTTAAGAA
      TACCAACAAC AGTAACAGCC GCGTTGATAG CCATAGTTCG ACAAATTCTT

1501  ATTCACCTCG AAAGCAAGCT GATAAAGGAG GTTTCTCGAT CGAGACGTTN
      TAAGTGGAGC TTTCGTTCGA CTATTTCCTC CAAAGAGCTA GCTCTGCAAN

1551  NNNGAGGTTC CAACTTTCAC CATAATGAAA TAAGATCACT ACCGGGCGTA
      NNNCTCCAAG GTTGAAAGTG GTATTACTTT ATTCTAGTGA TGGCCCGCAT

1601  TTTTTTGAGT TATCGAGATT TTCAGGAGCT AAGGAAGCTA AAATGGAGAA
      AAAAAACTCA ATAGCTCTAA AAGTCCTCGA TTCCTTCGAT TTTACCTCTT

1651  AAAAATCACT GGATATACCA CCGTTGATAT ATCCCAATGG CATCGTAAAG
      TTTTTAGTGA CCTATATGGT GGCAACTATA TAGGGTTACC GTAGCATTTC
```

Figure 3D


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1701  AACATTTTGA GGCATTTCAG TCAGTTGCTC AATGTACCTA TAACCAGACC
      TTGTAAAACT CCGTAAAGTC AGTCAACGAG TTACATGGAT ATTGGTCTGG

1751  GTTCAGCTGG ATATTACGGC CTTTTTAAAG ACCGTAAAGA AAAATAAGCA
      CAAGTCGACC TATAATGCCG GAAAAATTTC TGGCATTTCT TTTTATTCGT

1801  CAAGTTTTAT CCGGCCTTTA TTCACATTCT TGCCCGCCTG ATGAATGCTC
      GTTCAAAATA GGCCGGAAAT AAGTGTAAGA ACGGGCGGAC TACTTACGAG

1851  ATCCGGAGTT CCGTATGGCA ATGAAAGACG GTGAGCTGGT GATATGGGAT
      TAGGCCTCAA GGCATACCGT TACTTTCTGC CACTCGACCA CTATACCCTA

1901  AGTGTTCACC CTTGTTACAC CGTTTTCCAT GAGCAAACTG AAACGTTTTC
      TCACAAGTGG GAACAATGTG GCAAAAGGTA CTCGTTTGAC TTTGCAAAAG

1951  ATCGCTCTGG AGTGAATACC ACGACGATTT CCGGCAGTTT CTACACATAT
      TAGCGAGACC TCACTTATGG TGCTGCTAAA GGCCGTCAAA GATGTGTATA

2001  ATTCGCAAGA TGTGGCGTGT TACGGTGAAA ACCTGGCCTA TTTCCCTAAA
      TAAGCGTTCT ACACCGCACA ATGCCACTTT TGGACCGGAT AAAGGGATTT

2051  GGGTTTATTG AGAATATGTT TTTCGTCTCA GCCAATCCCT GGGTGAGTTT
      CCCAAATAAC TCTTATACAA AAAGCAGAGT CGGTTAGGGA CCCACTCAAA

2101  CACCAGTTTT GATTTAAACG TAGCCAATAT GGACAACTTC TTCGCCCCCG
      GTGGTCAAAA CTAAATTTGC ATCGGTTATA CCTGTTGAAG AAGCGGGGGC

2151  TTTTCACTAT GGGCAAATAT TATACGCAAG GCGACAAGGT GCTGATGCCG
      AAAAGTGATA CCCGTTTATA ATATGCGTTC CGCTGTTCCA CGACTACGGC

2201  CTGGCGATTC AGGTTCATCA TGCCGTTTGT GATGGCTTCC ATGTCGGCAG
      GACCGCTAAG TCCAAGTAGT ACGGCAAACA CTACCGAAGG TACAGCCGTC

2251  AATGCTTAAT GAATTACAAC AGTACTGCGA TGAGTGGCAG GGCGGGGCGT
      TTACGAATTA CTTAATGTTG TCATGACGCT ACTCACCGTC CCGCCCCGCA

2301  AATTTTTTTA AGGCAGTTAT TGGTGCCCTT AAACGCCTGG TGCTAGCCTG
      TTAAAAAAAT TCCGTCAATA ACCACGGGAA TTTGCGGACC ACGATCGGAC

2351  AGGCCAGTTT GCTCAGGCTC TCCCCGTGGA GGTAATAATT GCTCGACCGA
      TCCGGTCAAA CGAGTCCGAG AGGGGCACCT CCATTATTAA CGAGCTGGCT

2401  TAAAAGCGGC TTCCTGACAG GAGGCCGTTT TGTTTTGCAG CCCACCTCAA
      ATTTTCGCCG AAGGACTGTC CTCCGGCAAA ACAAAACGTC GGGTGGAGTT

2451  CGCAATTAAT GTGAGTTAGC TCACTCATTA GGCACCCCAG GCTTTACACT
      GCGTTAATTA CACTCAATCG AGTGAGTAAT CCGTGGGGTC CGAAATGTGA

2501  TTATGCTTCC GGCTCGTATG TTGTGTGGAA TTGTGAGCGG ATAACAATTT
      AATACGAAGG CCGAGCATAC AACACACCTT AACACTCGCC TATTGTTAAA
```

Figure 3E


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2551   CACACAGGAA ACAGCTATGA CCATGATTAC GAATTTCTAG ATAACGAGGG
       GTGTGTCCTT TGTCGATACT GGTACTAATG CTTAAAGATC TATTGCTCCC

2601   CAAAAAATGA AAAAGACAGC TATCGCGATT GCAGTGGCAC TGGCTGGTTT
       GTTTTTTACT TTTTCTGTCG ATAGCGCTAA CGTCACCGTG ACCGACCAAA

2651   CGCTACCGTA GCGCAGGCCG ACTACAAAGA TGTCGACGCC GGTGGTCGGA
       GCGATGGCAT CGCGTCCGGC TGATGTTTCT ACAGCTGCGG CCACCAGCCT

2701   TCGCCCGGCT AGAGGAAAAA GTGAAAACCT TGAAAGCGCA AAACTCCGAG
       AGCGGGCCGA TCTCCTTTTT CACTTTTGGA ACTTTCGCGT TTTGAGGCTC

2751   CTGGCGTCCA CGGCCAACAT GCTCAGGGAA CAGGTGGCAC AGCTTAAACA
       GACCGCAGGT GCCGGTTGTA CGAGTCCCTT GTCCACCGTG TCGAATTTGT

                                        EcoRI
                                       -------
2801   GAAAGTCATG AACCACGGTG GTGCCGAATT CAATGCTGGC GGCGGCTCTG
       CTTTCAGTAC TTGGTGCCAC CACGGCTTAA GTTACGACCG CCGCCGAGAC

2851   GTGGTGGTTC TGGTGGCGGC TCTGAGGGTG GTGGCTCTGA GGGTGGCGGT
       CACCACCAAG ACCACCGCCG AGACTCCCAC CACCGAGACT CCCACCGCCA

2901   TCTGAGGGTG GCGGCTCTGA GGGAGGCGGT TCCGGTGGTG GCTCTGGTTC
       AGACTCCCAC CGCCGAGACT CCCTCCGCCA AGGCCACCAC CGAGACCAAG

2951   CGGTGATTTT GATTATGAAA AGATGGCAAA CGCTAATAAG GGGGCTATGA
       GCCACTAAAA CTAATACTTT TCTACCGTTT GCGATTATTC CCCCGATACT

3001   CCGAAAATGC CGATGAAAAC GCGCTACAGT CTGACGCTAA AGGCAAACTT
       GGCTTTTACG GCTACTTTTG CGCGATGTCA GACTGCGATT TCCGTTTGAA

                                                  ClaI
                                                 ------
3051   GATTCTGTCG CTACTGATTA CGGTGCTGCT ATCGATGGTT TCATTGGTGA
       CTAAGACAGC GATGACTAAT GCCACGACGA TAGCTACCAA AGTAACCACT

3101   CGTTTCCGGC CTTGCTAATG GTAATGGTGC TACTGGTGAT TTTGCTGGCT
       GCAAAGGCCG GAACGATTAC CATTACCACG ATGACCACTA AAACGACCGA

3151   CTAATTCCCA AATGGCTCAA GTCGGTGACG GTGATAATTC ACCTTTAATG
       GATTAAGGGT TTACCGAGTT CAGCCACTGC CACTATTAAG TGGAAATTAC

3201   AATAATTTCC GTCAATATTT ACCTTCCCTC CCTCAATCGG TTGAATGTCG
       TTATTAAAGG CAGTTATAAA TGGAAGGGAG GGAGTTAGCC AACTTACAGC

3251   CCCTTTTGTC TTTAGCGCTG GTAAACCATA TGAATTTTCT ATTGATTGTG
       GGGAAAACAG AAATCGCGAC CATTTGGTAT ACTTAAAAGA TAACTAACAC

3301   ACAAAATAAA CTTATTCCGT GGTGTCTTTG CGTTTCTTTT ATATGTTGCC
       TGTTTTATTT GAATAAGGCA CCACAGAAAC GCAAAGAAAA TATACAACGG
```

Figure 3F


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3351   ACCTTTATGT ATGTATTTTC TACGTTTGCT AACATACTGC GTAATAAGGA
       TGGAAATACA TACATAAAAG ATGCAAACGA TTGTATGACG CATTATTCCT

                 HindIII
                 --------
3401   GTCTTGATAA GCTTCGAGAA ATTCACCTCG AAAGCAAGCT GATAAACCGA
       CAGAACTATT CGAAGCTCTT TAAGTGGAGC TTTCGTTCGA CTATTTGGCT

3451   TACAATTAAA GGCTCCTTTT GGAGCCTTTT TTTTTGGAGA ATTAATTCAA
       ATGTTAATTT CCGAGGAAAA CCTCGGAAAA AAAAACCTCT TAATTAAGTT

3501   TCATGCCAGT TCTTTTGGGT ATTCCGTTAT TATTGCGTTT CCTCGGTTTC
       AGTACGGTCA AGAAAACCCA TAAGGCAATA ATAACGCAAA GGAGCCAAAG

3551   CTTCTGGTAA CTTTGTTCGG CTATCTGCTT ACTTTCCTTA AAAAGGGCTT
       GAAGACCATT GAAACAAGCC GATAGACGAA TGAAAGGAAT TTTTCCCGAA

3601   CGGTAAGATA GCTATTGCTA TTTCATTGTT TCTTGCTCTT ATTATTGGGC
       GCCATTCTAT CGATAACGAT AAAGTAACAA AGAACGAGAA TAATAACCCG

3651   TTAACTCAAT TCTTGTGGGT TATCTCTCTG ATATTAGCGC ACAATTACCC
       AATTGAGTTA AGAACACCCA ATAGAGAGAC TATAATCGCG TGTTAATGGG

3701   TCTGATTTTG TTCAGGGCGT TCAGTTAATT CTCCCGTCTA ATGCGCTTCC
       AGACTAAAAC AAGTCCCGCA AGTCAATTAA GAGGGCAGAT TACGCGAAGG

3751   CTGTTTTTAT GTTATTCTCT CTGTAAAGGC TGCTATTTTC ATTTTTGACG
       GACAAAAATA CAATAAGAGA GACATTTCCG ACGATAAAAG TAAAAACTGC

3801   TTAAACAAAA AATCGTTTCT TATTTGGATT GGGATAAATA AATATGGCTG
       AATTTGTTTT TTAGCAAAGA ATAAACCTAA CCCTATTTAT TTATACCGAC

3851   TTTATTTTGT AACTGGCAAA TTAGGCTCTG GAAAGACGCT CGTTAGCGTT
       AAATAAAACA TTGACCGTTT AATCCGAGAC CTTTCTGCGA GCAATCGCAA

3901   GGTAAGATTC AGGATAAAAT TGTAGCTGGG TGCAAAATAG CAACTAATCT
       CCATTCTAAG TCCTATTTTA ACATCGACCC ACGTTTTATC GTTGATTAGA

3951   TGATTTAAGG CTTCAAAACC TCCCGCAAGT CGGGAGGTTC GCTAAAACGC
       ACTAAATTCC GAAGTTTTGG AGGGCGTTCA GCCCTCCAAG CGATTTTGCG

4001   CTCGCGTTCT TAGAATACCG GATAAGCCTT CTATTTCTGA TTTGCTTGCT
       GAGCGCAAGA ATCTTATGGC CTATTCGGAA GATAAAGACT AAACGAACGA

4051   ATTGGTCGTG GTAATGATTC CTACGACGAA AATAAAAACG GTTTGCTTGT
       TAACCAGCAC CATTACTAAG GATGCTGCTT TTATTTTTGC CAAACGAACA

4101   TCTTGATGAA TGCGGTACTT GGTTTAATAC CCGTTCATGG AATGACAAGG
       AGAACTACTT ACGCCATGAA CCAAATTATG GGCAAGTACC TTACTGTTCC
```

Figure 3G


```
4151  AAAGACAGCC GATTATTGAT TGGTTTCTTC ATGCTCGTAA ATTGGGATGG
      TTTCTGTCGG CTAATAACTA ACCAAAGAAG TACGAGCATT TAACCCTACC

4201  GATATTATTT TTCTTGTTCA GGATTTATCT ATTGTTGATA AACAGGCGCG
      CTATAATAAA AAGAACAAGT CCTAAATAGA TAACAACTAT TTGTCCGCGC

4251  TTCTGCATTA GCTGAACACG TTGTTTATTG TCGCCGTCTG GACAGAATTA
      AAGACGTAAT CGACTTGTGC AACAAATAAC AGCGGCAGAC CTGTCTTAAT

4301  CTTTACCCTT TGTCGGCACT TTATATTCTC TTGTTACTGG CTCAAAAATG
      GAAATGGGAA ACAGCCGTGA AATATAAGAG AACAATGACC GAGTTTTTAC

4351  CCTCTGCCTA AATTACATGT TGGTGTTGTT AAATATGGTG ATTCTCAATT
      GGAGACGGAT TTAATGTACA ACCACAACAA TTTATACCAC TAAGAGTTAA

4401  AAGCCCTACT GTTGAGCGTT GGCTTTATAC TGGTAAGAAT TTATATAACG
      TTCGGGATGA CAACTCGCAA CCGAAATATG ACCATTCTTA AATATATTGC

4451  CATATGACAC TAAACAGGCT TTTTCCAGTA ATTATGATTC AGGTGTTTAT
      GTATACTGTG ATTTGTCCGA AAAAGGTCAT TAATACTAAG TCCACAAATA

4501  TCATATTTAA CCCCTTATTT ATCACACGGT CGGTATTTCA AACCATTAAA
      AGTATAAATT GGGGAATAAA TAGTGTGCCA GCCATAAAGT TTGGTAATTT

4551  TTTAGGTCAG AAGATGAAAT TAACTAAAAT ATATTTGAAA AAGTTTTCTC
      AAATCCAGTC TTCTACTTTA ATTGATTTTA TATAAACTTT TTCAAAAGAG

4601  GCGTTCTTTG TCTTGCGATA GGATTTGCAT CAGCATTTAC ATATAGTTAT
      CGCAAGAAAC AGAACGCTAT CCTAAACGTA GTCGTAAATG TATATCAATA

4651  ATAACCCAAC CTAAGCCGGA GGTTAAAAAG GTAGTCTCTC AGACCTATGA
      TATTGGGTTG GATTCGGCCT CCAATTTTTC CATCAGAGAG TCTGGATACT

4701  TTTTGATAAA TTCACTATTG ACTCTTCTCA GCGTCTTAAT CTAAGCTATC
      AAAACTATTT AAGTGATAAC TGAGAAGAGT CGCAGAATTA GATTCGATAG

4751  GCTATGTTTT CAAGGATTCT AAGGGAAAAT TAATTAATAG CGACGATTTA
      CGATACAAAA GTTCCTAAGA TTCCCTTTTA ATTAATTATC GCTGCTAAAT

4801  CAGAAGCAAG GTTATTCCAT CACATATATT GATTTATGTA CTGTTTCAAT
      GTCTTCGTTC CAATAAGGTA GTGTATATAA CTAAATACAT GACAAAGTTA

4851  TAAAAAAGGT AATTCAAATG AAATTGTTAA ATGTAATTAA TTTTGTTTTC
      ATTTTTTCCA TTAAGTTTAC TTTAACAATT TACATTAATT AAAACAAAAG

4901  TTGATGTTTG TTTCATCATC TTCTTTTGCT CAAGTAATTG AAATGAATAA
      AACTACAAAC AAAGTAGTAG AAGAAAACGA GTTCATTAAC TTTACTTATT

4951  TTCGCCTCTG CGCGATTTCG TGACTTGGTA TTCAAAGCAA ACAGGTGAAT
      AAGCGGAGAC GCGCTAAAGC ACTGAACCAT AAGTTTCGTT TGTCCACTTA
```

Figure 3H


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5001  CTGTTATTGT CTCACCTGAT GTTAAAGGTA CAGTGACTGT ATATTCCTCT
      GACAATAACA GAGTGGACTA CAATTTCCAT GTCACTGACA TATAAGGAGA

5051  GACGTTAAGC CTGAAAATTT ACGCAATTTC TTTATCTCTG TTTTACGTGC
      CTGCAATTCG GACTTTTAAA TGCGTTAAAG AAATAGAGAC AAAATGCACG

5101  TAATAATTTT GATATGGTTG GCTCAATTCC TTCCATAATT CAGAAATATA
      ATTATTAAAA CTATACCAAC CGAGTTAAGG AAGGTATTAA GTCTTTATAT

5151  ACCCAAATAG TCAGGATTAT ATTGATGAAT TGCCATCATC TGATATTCAG
      TGGGTTTATC AGTCCTAATA TAACTACTTA ACGGTAGTAG ACTATAAGTC

5201  GAATATGATG ATAATTCCGC TCCTTCTGGT GGTTTCTTTG TTCCGCAAAA
      CTTATACTAC TATTAAGGCG AGGAAGACCA CCAAAGAAAC AAGGCGTTTT

5251  TGATAATGTT ACTCAAACAT TTAAAATTAA TAACGTTCGC GCAAAGGATT
      ACTATTACAA TGAGTTTGTA AATTTTAATT ATTGCAAGCG CGTTTCCTAA

5301  TAATAAGGGT TGTAGAATTG TTTGTTAAAT CTAATACATC TAAATCCTCA
      ATTATTCCCA ACATCTTAAC AAACAATTTA GATTATGTAG ATTTAGGAGT

5351  AATGTATTAT CTGTTGATGG TTCTAACTTA TTAGTAGTTA GCGCCCCTAA
      TTACATAATA GACAACTACC AAGATTGAAT AATCATCAAT CGCGGGGATT

5401  AGATATTTTA GATAACCTTC CGCAATTTCT TTCTACTGTT GATTTGCCAA
      TCTATAAAAT CTATTGGAAG GCGTTAAAGA AAGATGACAA CTAAACGGTT

5451  CTGACCAGAT ATTGATTGAA GGATTAATTT TCGAGGTTCA GCAAGGTGAT
      GACTGGTCTA TAACTAACTT CCTAATTAAA AGCTCCAAGT CGTTCCACTA

5501  GCTTTAGATT TTTCCTTTGC TGCTGGCTCT CAGCGCGGCA CTGTTGCTGG
      CGAAATCTAA AAAGGAAACG ACGACCGAGA GTCGCGCCGT GACAACGACC

5551  TGGTGTTAAT ACTGACCGTC TAACCTCTGT TTTATCTTCT GCGGGTGGTT
      ACCACAATTA TGACTGGCAG ATTGGAGACA AAATAGAAGA CGCCCACCAA

5601  CGTTCGGTAT TTTTAACGGC GATGTTTTAG GGCTATCAGT TCGCGCATTA
      GCAAGCCATA AAAATTGCCG CTACAAAATC CCGATAGTCA AGCGCGTAAT

5651  AAGACTAATA GCCATTCAAA AATATTGTCT GTGCCTCGTA TTCTTACGCT
      TTCTGATTAT CGGTAAGTTT TTATAACAGA CACGGAGCAT AAGAATGCGA

5701  TTCAGGTCAG AAGGGTTCTA TTTCTGTTGG CCAGAATGTC CCTTTTATTA
      AAGTCCAGTC TTCCCAAGAT AAAGACAACC GGTCTTACAG GGAAAATAAT

5751  CTGGTCGTGT AACTGGTGAA TCTGCCAATG TAAATAATCC ATTTCAGACG
      GACCAGCACA TTGACCACTT AGACGGTTAC ATTTATTAGG TAAAGTCTGC

5801  GTTGAGCGTC AAAATGTTGG TATTTCTATG AGTGTTTTTC CCGTTGCAAT
      CAACTCGCAG TTTTACAACC ATAAAGATAC TCACAAAAAG GGCAACGTTA
```

Figure 3I


```
5851   GGCTGGCGGT AATATTGTTT TAGATATAAC CAGTAAGGCC GATAGTTTGA
       CCGACCGCCA TTATAACAAA ATCTATATTG GTCATTCCGG CTATCAAACT

5901   GTTCTTCTAC TCAGGCAAGT GATGTTATTA CTAATCAAAG AAGTATTGCG
       CAAGAAGATG AGTCCGTTCA CTACAATAAT GATTAGTTTC TTCATAACGC

5951   ACAACGGTTA ATTTGCGTGA TGGTCAGACT CTTTTGCTCG GTGGCCTCAC
       TGTTGCCAAT TAAACGCACT ACCAGTCTGA GAAAACGAGC CACCGGAGTG

6001   TGATTACAAA AACACTTCTC AAGATTCTGG TGTGCCGTTC CTGTCTAAAA
       ACTAATGTTT TTGTGAAGAG TTCTAAGACC ACACGGCAAG GACAGATTTT

6051   TCCCTTTAAT CGGCCTCCTG TTTAGCTCCC GTTCTGATTC TAACGAGGAA
       AGGGAAATTA GCCGGAGGAC AAATCGAGGG CAAGACTAAG ATTGCTCCTT

6101   AGCACGTTGT ACGTGCTCGT CAAAGCAACC ATAGTACGCG CCCTGTAGCG
       TCGTGCAACA TGCACGAGCA GTTTCGTTGG TATCATGCGC GGGACATCGC

6151   GCGCATTAAG CGCGGCGGGT GTGGTGGTTA CGCGCAGCGT GACCGCTACA
       CGCGTAATTC GCGCCGCCCA CACCACCAAT GCGCGTCGCA CTGGCGATGT

6201   CTTGCCAGCG CCCTAGCGCC CGCTCCTTTC GCTTTCTTCC CTTCCTTTCT
       GAACGGTCGC GGGATCGCGG GCGAGGAAAG CGAAAGAAGG GAAGGAAAGA

                                                    BamHI
                                                    ------
6251   CGCCACGTTC TCCGGCTTTC CCCGTCAAGC TCTAAATCGG GGGATCCCTT
       GCGGTGCAAG AGGCCGAAAG GGGCAGTTCG AGATTTAGCC CCCTAGGGAA

6301   TAGGGTTCCG ATTTAGTGCT TTACGGCACC TCGACCTCCA AAAACTTGAT
       ATCCCAAGGC TAAATCACGA AATGCCGTGG AGCTGGAGGT TTTTGAACTA

6351   TTGGGTGATG GTTCACGTAG TGGGCCATCG CCCTGATAGA CGGTTTTTCG
       AACCCACTAC CAAGTGCATC ACCCGGTAGC GGGACTATCT GCCAAAAAGC

6401   CCCTTTGACG TTGGAGTCCA CGTTCTTTAA TAGTGGACTC TTGTTCCAAA
       GGGAAACTGC AACCTCAGGT GCAAGAAATT ATCACCTGAG AACAAGGTTT

6451   CTGGAACAAC ACTCACAACT AACTCGGCCT ATTCTTTTGA TTTATAAGGA
       GACCTTGTTG TGAGTGTTGA TTGAGCCGGA TAAGAAAACT AAATATTCCT

6501   TTTTTGTCAT TTTCTGCTTA CTGGTTAAAA AATAAGCTGA TTTAACAAAT
       AAAAAACAGTA AAAGACGAAT GACCAATTTT TTATTCGACT AAATTGTTTA

6551   ATTTAACGCG AAATTTAACA AAACATTAAC GTTTACAATT TAAATATTTG
       TAAATTGCGC TTTAAATTGT TTTGTAATTG CAAATGTTAA ATTTATAAAC

6601   CTTATACAAT CATCCTGTTT TTGGGGCTTT TCTGATTATC AACCGGGGTA
       GAATATGTTA GTAGGACAAA AACCCCGAAA AGACTAATAG TTGGCCCCAT
```

Figure 3J

ClaI

```
6651   CATATGATTG ACATGCTAGT TTTACGATTA CCGTTCATCG ATTCTCTTGT
       GTATACTAAC TGTACGATCA AAATGCTAAT GGCAAGTAGC TAAGAGAACA

6701   TTGCTCCAGA CTTTCAGGTA ATGACCTGAT AGCCTTTGTA GACCTCTCAA
       AACGAGGTCT GAAAGTCCAT TACTGGACTA TCGGAAACAT CTGGAGAGTT

6751   AAATAGCTAC CCTCTCCGGC ATGAATTTAT CAGCTAGAAC GGTTGAATAT
       TTTATCGATG GGAGAGGCCG TACTTAAATA GTCGATCTTG CCAACTTATA

6801   CATATTGACG GTGATTTGAC TGTCTCCGGC CTTTCTCACC CGTTTGAATC
       GTATAACTGC CACTAAACTG ACAGAGGCCG GAAAGAGTGG GCAAACTTAG

6851   TTTGCCTACT CATTACTCCG GCATTGCATT TAAAATATAT GAGGGTTCTA
       AAACGGATGA GTAATGAGGC CGTAACGTAA ATTTTATATA CTCCCAAGAT

6901   AAAATTTTTA TCCCTGCGTT GAAATTAAGG CTTCACCAGC AAAAGTATTA
       TTTTAAAAAT AGGGACGCAA CTTTAATTCC GAAGTGGTCG TTTTCATAAT

6951   CAGGGTCATA ATGTTTTTGG TACAACCGAT TTAGCTTTAT GCTCTGAGGC
       GTCCCAGTAT TACAAAAACC ATGTTGGCTA AATCGAAATA CGAGACTCCG

7001   TTTATTGCTT AATTTTGCTA ACTCTCTGCC TTGCTTGTAC GATTTATTGG
       AAATAACGAA TTAAAACGAT TGAGAGACGG AACGAACATG CTAAATAACC

7051   ATGTT
       TACAA
```

Figure 4A

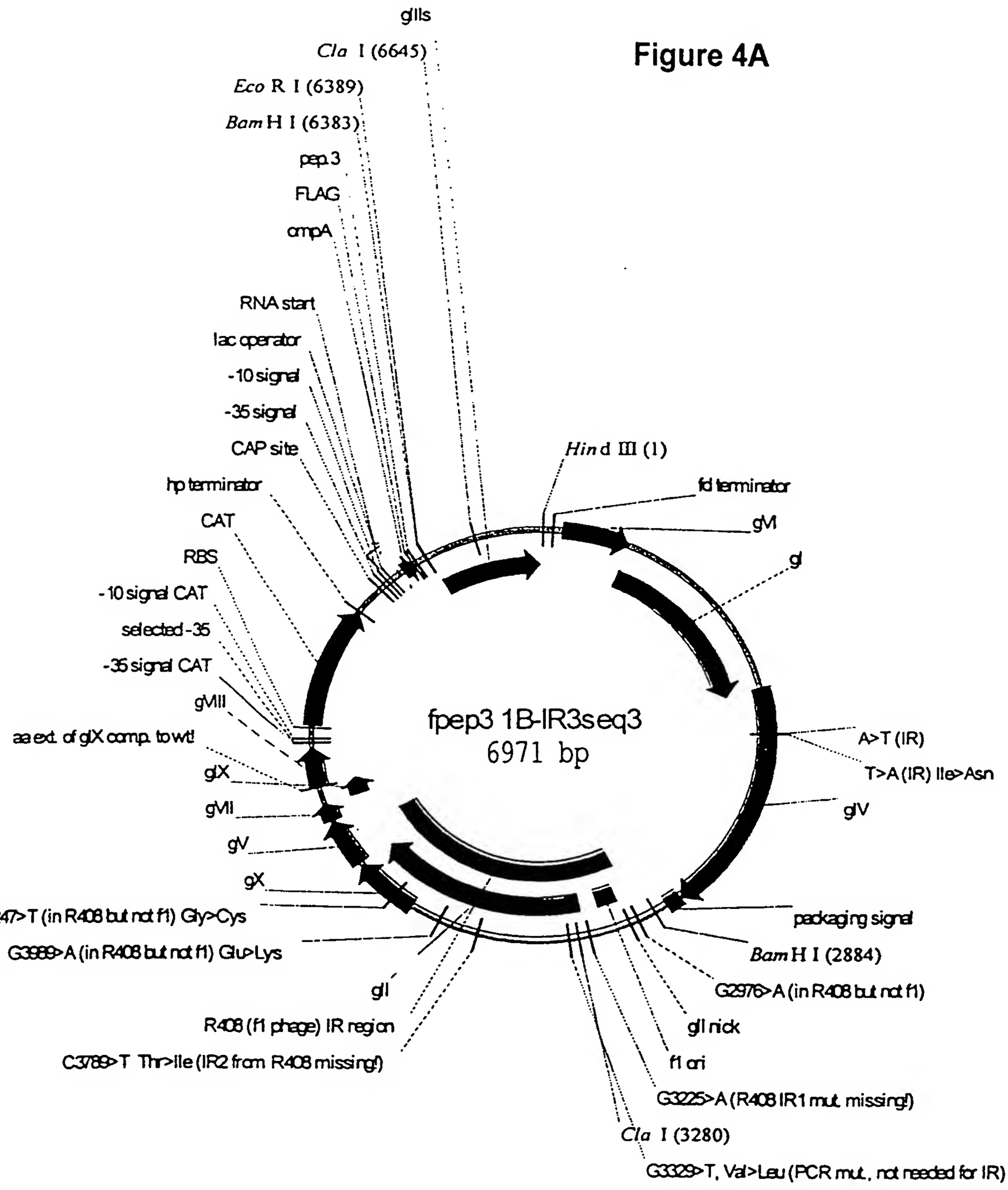
gIIs
Cla I (6645)
Eco R I (6389)
Bam H I (6383)
pep.3
FLAG
ompA
RNA start
lac operator
-10 signal
-35 signal
CAP site
hp terminator
CAT
RBS
-10 signal CAT
selected -35
-35 signal CAT
gVIII
aa ext. of gX comp. to wt
gX
gVII
gV
gX
G4247>T (in R408 but not f1) Gly>Cys
G3989>A (in R408 but not f1) Glu>Lys
gI
R408 (f1 phage) IR region
C3789>T Thr>Ile (IR2 from R408 missing!)
Hin d III (1)
fd terminator
gVI
gI
A>T (IR)
T>A (IR) Ile>Asn
gV
packaging signal
Bam H I (2884)
G2976>A (in R408 but not f1)
gII nick
f1 ori
G3225>A (R408 IR1 mut. missing!)
Cla I (3280)
G3329>T, Val>Leu (PCR mut., not needed for IR)
fpep3 1B-IR3seq3
6971 bp

Figure 4B

HindIII

```
   1  AGCTTCGAGA AATTCACCTC GAAAGCAAGC TGATAAACCG ATACAATTAA
      TCGAAGCTCT TTAAGTGGAG CTTTCGTTCG ACTATTTGGC TATGTTAATT

  51  AGGCTCCTTT TGGAGCCTTT TTTTTTGGAG AATTAATTCA ATCATGCCAG
      TCCGAGGAAA ACCTCGGAAA AAAAAACCTC TTAATTAAGT TAGTACGGTC

 101  TTCTTTTGGG TATTCCGTTA TTATTGCGTT TCCTCGGTTT CCTTCTGGTA
      AAGAAAACCC ATAAGGCAAT AATAACGCAA AGGAGCCAAA GGAAGACCAT

 151  ACTTTGTTCG GCTATCTGCT TACTTTCCTT AAAAAGGGCT TCGGTAAGAT
      TGAAACAAGC CGATAGACGA ATGAAAGGAA TTTTTCCCGA AGCCATTCTA

 201  AGCTATTGCT ATTTCATTGT TTCTTGCTCT TATTATTGGG CTTAACTCAA
      TCGATAACGA TAAAGTAACA AAGAACGAGA ATAATAACCC GAATTGAGTT

 251  TTCTTGTGGG TTATCTCTCT GATATTAGCG CACAATTACC CTCTGATTTT
      AAGAACACCC AATAGAGAGA CTATAATCGC GTGTTAATGG GAGACTAAAA

 301  GTTCAGGGCG TTCAGTTAAT TCTCCCGTCT AATGCGCTTC CCTGTTTTTA
      CAAGTCCCGC AAGTCAATTA AGAGGGCAGA TTACGCGAAG GGACAAAAAT

 351  TGTTATTCTC TCTGTAAAGG CTGCTATTTT CATTTTTGAC GTTAAACAAA
      ACAATAAGAG AGACATTTCC GACGATAAAA GTAAAAACTG CAATTTGTTT

 401  AAATCGTTTC TTATTTGGAT TGGGATAAAT AAATATGGCT GTTTATTTTG
      TTTAGCAAAG AATAAACCTA ACCCTATTTA TTTATACCGA CAAATAAAAC

 451  TAACTGGCAA ATTAGGCTCT GGAAAGACGC TCGTTAGCGT TGGTAAGATT
      ATTGACCGTT TAATCCGAGA CCTTTCTGCG AGCAATCGCA ACCATTCTAA

 501  CAGGATAAAA TTGTAGCTGG GTGCAAAATA GCAACTAATC TTGATTTAAG
      GTCCTATTTT AACATCGACC CACGTTTTAT CGTTGATTAG AACTAAATTC

 551  GCTTCAAAAC CTCCCGCAAG TCGGGAGGTT CGCTAAAACG CCTCGCGTTC
      CGAAGTTTTG GAGGGCGTTC AGCCCTCCAA GCGATTTTGC GGAGCGCAAG

 601  TTAGAATACC GGATAAGCCT TCTATTTCTG ATTTGCTTGC TATTGGTCGT
      AATCTTATGG CCTATTCGGA AGATAAAGAC TAAACGAACG ATAACCAGCA

 651  GGTAATGATT CCTACGACGA AAATAAAAAC GGTTTGCTTG TTCTTGATGA
      CCATTACTAA GGATGCTGCT TTTATTTTTG CCAAACGAAC AAGAACTACT

 701  ATGCGGTACT TGGTTTAATA CCCGTTCATG GAATGACAAG GAAAGACAGC
      TACGCCATGA ACCAAATTAT GGGCAAGTAC CTTACTGTTC CTTTCTGTCG

 751  CGATTATTGA TTGGTTTCTT CATGCTCGTA AATTGGGATG GGATATTATT
      GCTAATAACT AACCAAAGAA GTACGAGCAT TTAACCCTAC CCTATAATAA
```

Figure 4C


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801   TTTCTTGTTC AGGATTTATC TATTGTTGAT AAACAGGCGC GTTCTGCATT
      AAAGAACAAG TCCTAAATAG ATAACAACTA TTTGTCCGCG CAAGACGTAA

851   AGCTGAACAC GTTGTTTATT GTCGCCGTCT GGACAGAATT ACTTTACCCT
      TCGACTTGTG CAACAAATAA CAGCGGCAGA CCTGTCTTAA TGAAATGGGA

901   TTGTCGGCAC TTTATATTCT CTTGTTACTG GCTCAAAAAT GCCTCTGCCT
      AACAGCCGTG AAATATAAGA GAACAATGAC CGAGTTTTTA CGGAGACGGA

951   AAATTACATG TTGGTGTTGT TAAATATGGT GATTCTCAAT TAAGCCCTAC
      TTTAATGTAC AACCACAACA ATTTATACCA CTAAGAGTTA ATTCGGGATG

1001  TGTTGAGCGT TGGCTTTATA CTGGTAAGAA TTTATATAAC GCATATGACA
      ACAACTCGCA ACCGAAATAT GACCATTCTT AAATATATTG CGTATACTGT

1051  CTAAACAGGC TTTTTCCAGT AATTATGATT CAGGTGTTTA TTCATATTTA
      GATTTGTCCG AAAAAGGTCA TTAATACTAA GTCCACAAAT AAGTATAAAT

1101  ACCCCTTATT TATCACACGG TCGGTATTTC AAACCATTAA ATTTAGGTCA
      TGGGGAATAA ATAGTGTGCC AGCCATAAAG TTTGGTAATT TAAATCCAGT

1151  GAAGATGAAA TTAACTAAAA TATATTTGAA AAAGTTTTCT CGCGTTCTTT
      CTTCTACTTT AATTGATTTT ATATAAACTT TTTCAAAAGA GCGCAAGAAA

1201  GTCTTGCGAT AGGATTTGCA TCAGCATTTA CATATAGTTA TATAACCCAA
      CAGAACGCTA TCCTAAACGT AGTCGTAAAT GTATATCAAT ATATTGGGTT

1251  CCTAAGCCGG AGGTTAAAAA GGTAGTCTCT CAGACCTATG ATTTTGATAA
      GGATTCGGCC TCCAATTTTT CCATCAGAGA GTCTGGATAC TAAAACTATT

1301  ATTCACTATT GACTCTTCTC AGCGTCTTAA TCTAAGCTAT CGCTATGTTT
      TAAGTGATAA CTGAGAAGAG TCGCAGAATT AGATTCGATA GCGATACAAA

1351  TCAAGGATTC TAAGGGAAAA TTAATTAATA GCGACGATTT ACAGAAGCAA
      AGTTCCTAAG ATTCCCTTTT AATTAATTAT CGCTGCTAAA TGTCTTCGTT

1401  GGTTATTCCA TCACATATAT TGATTTATGT ACTGTTTCAA TTAAAAAAGG
      CCAATAAGGT AGTGTATATA ACTAAATACA TGACAAAGTT AATTTTTTCC

1451  TAATTCAAAT GAAATTGTTA AATGTAATTA ATTTTGTTTT CTTGATGTTT
      ATTAAGTTTA CTTTAACAAT TTACATTAAT TAAAACAAAA GAACTACAAA

1501  GTTTCATCAT CTTCTTTTGC TCAAGTAATT GAAATGAATA ATTCGCCTCT
      CAAAGTAGTA GAAGAAAACG AGTTCATTAA CTTTACTTAT TAAGCGGAGA

1551  GCGCGATTTC GTGACTTGGT ATTCAAAGCA AACAGGTGAA TCTGTTATTG
      CGCGCTAAAG CACTGAACCA TAAGTTTCGT TTGTCCACTT AGACAATAAC

1601  TCTCACCTGA TGTTAAAGGT ACAGTGACTG TATATTCCTC TGACGTTAAG
      AGAGTGGACT ACAATTTCCA TGTCACTGAC ATATAAGGAG ACTGCAATTC
```

Figure 4D


```
1651  CCTGAAAATT TACGCAATTT CTTTATCTCT GTTTTACGTG CTAATAATTT
      GGACTTTTAA ATGCGTTAAA GAAATAGAGA CAAAATGCAC GATTATTAAA

1701  TGATATGGTT GGCTCTAATC CTTCCATAAT TCAGAAATAT AACCCAAATA
      ACTATACCAA CCGAGATTAG GAAGGTATTA AGTCTTTATA TTGGGTTTAT

1751  GTCAGGATTA TATTGATGAA TTGCCATCAT CTGATATTCA GGAATATGAT
      CAGTCCTAAT ATAACTACTT AACGGTAGTA GACTATAAGT CCTTATACTA

1801  GATAATTCCG CTCCTTCTGG TGGTTTCTTT GTTCCGCAAA ATGATAATGT
      CTATTAAGGC GAGGAAGACC ACCAAAGAAA CAAGGCGTTT TACTATTACA

1851  TACTCAAACA TTTAAAATTA ATAACGTTCG CGCAAAGGAT TTAATAAGGG
      ATGAGTTTGT AAATTTTAAT TATTGCAAGC GCGTTTCCTA AATTATTCCC

1901  TTGTAGAATT GTTTGTTAAA TCTAATACAT CTAAATCCTC AAATGTATTA
      AACATCTTAA CAAACAATTT AGATTATGTA GATTTAGGAG TTTACATAAT

1951  TCTGTTGATG GTTCTAACTT ATTAGTAGTT AGCGCCCCTA AAGATATTTT
      AGACAACTAC CAAGATTGAA TAATCATCAA TCGCGGGGAT TTCTATAAAA

2001  AGATAACCTT CCGCAATTTC TTTCTACTGT TGATTTGCCA ACTGACCAGA
      TCTATTGGAA GGCGTTAAAG AAAGATGACA ACTAAACGGT TGACTGGTCT

2051  TATTGATTGA AGGATTAATT TTCGAGGTTC AGCAAGGTGA TGCTTTAGAT
      ATAACTAACT TCCTAATTAA AAGCTCCAAG TCGTTCCACT ACGAAATCTA

2101  TTTTCCTTTG CTGCTGGCTC TCAGCGCGGC ACTGTTGCTG GTGGTGTTAA
      AAAAGGAAAC GACGACCGAG AGTCGCGCCG TGACAACGAC CACCACAATT

2151  TACTGACCGT CTAACCTCTG TTTTATCTTC TGCGGGTGGT TCGTTCGGTA
      ATGACTGGCA GATTGGAGAC AAAATAGAAG ACGCCCACCA AGCAAGCCAT

2201  TTTTTAACGG CGATGTTTTA GGGCTATCAG TTCGCGCATT AAAGACTAAT
      AAAAATTGCC GCTACAAAAT CCCGATAGTC AAGCGCGTAA TTTCTGATTA

2251  AGCCATTCAA AAATATTGTC TGTGCCTCGT ATTCTTACGC TTTCAGGTCA
      TCGGTAAGTT TTTATAACAG ACACGGAGCA TAAGAATGCG AAAGTCCAGT

2301  GAAGGGTTCT ATTTCTGTTG GCCAGAATGT CCCTTTTTATT ACTGGTCGTG
      CTTCCCAAGA TAAAGACAAC CGGTCTTACA GGGAAAATAA TGACCAGCAC

2351  TAACTGGTGA ATCTGCCAAT GTAAATAATC CATTTCAGAC AATTGAGCGT
      ATTGACCACT TAGACGGTTA CATTTATTAG GTAAAGTCTG TTAACTCGCA

2401  CAAAATGTTG GTATTTCTAT GAGTGTTTTT CCCGTTGCAA TGGCTGGCGG
      GTTTTACAAC CATAAAGATA CTCACAAAAA GGGCAACGTT ACCGACCGCC

2451  TAATATTGTT TTAGATATAA CCAGTAAGGC CGATAGTTTG AGTTCTTCTA
      ATTATAACAA AATCTATATT GGTCATTCCG GCTATCAAAC TCAAGAAGAT
```

Figure 4E


```
2501   CTCAGGCAAG TGATGTTATT ACTAATCAAA GAAGTATTGC GACAACGGTT
       GAGTCCGTTC ACTACAATAA TGATTAGTTT CTTCATAACG CTGTTGCCAA

2551   AATTTGCGTG ATGGTCAGAC TCTTTTGCTC GGTGGCCTCA CTGATTACAA
       TTAAACGCAC TACCAGTCTG AGAAAACGAG CCACCGGAGT GACTAATGTT

2601   AAACACTTCT CAAGATTCTG GTGTGCCGTT CCTGTCTAAA ATCCCTTTAA
       TTTGTGAAGA GTTCTAAGAC CACACGGCAA GGACAGATTT TAGGGAAATT

2651   TCGGCCTCCT GTTTAGCTCC CGTTCTGATT CTAACGAGGA AAGCACGTTG
       AGCCGGAGGA CAAATCGAGG GCAAGACTAA GATTGCTCCT TTCGTGCAAC

2701   TACGTGCTCG TCAAAGCAAC CATAGTACGC GCCCTGTAGC GGCGCATTAA
       ATGCACGAGC AGTTTCGTTG GTATCATGCG CGGGACATCG CCGCGTAATT

2751   GCGCGGCGGG TGTGGTGGTT ACGCGCAGCG TGACCGCTAC ACTTGCCAGC
       CGCGCCGCCC ACACCACCAA TGCGCGTCGC ACTGGCGATG TGAACGGTCG

2801   GCCCTAGCGC CCGCTCCTTT CGCTTTCTTC CCTTCCTTTC TCGCCACGTT
       CGGGATCGCG GGCGAGGAAA GCGAAAGAAG GGAAGGAAAG AGCGGTGCAA

                                                  BamHI
                                                  ------
2851   CTCCGGCTTT CCCCGTCAAG CTCTAAATCG GGGGATCCCT TTAGGGTTCC
       GAGGCCGAAA GGGGCAGTTC GAGATTTAGC CCCCTAGGGA AATCCCAAGG

2901   GATTTAGTGC TTTACGGCAC CTCGACCTCC AAAAACTTGA TTTGGGTGAT
       CTAAATCACG AAATGCCGTG GAGCTGGAGG TTTTTGAACT AAACCCACTA

2951   GGTTCACGTA GTGGGCCATC GCCCTAATAG ACGGTTTTTC GCCCTTTGAC
       CCAAGTGCAT CACCCGGTAG CGGGATTATC TGCCAAAAAG CGGGAAACTG

3001   GTTGGAGTCC ACGTTCTTTA ATAGTGGACT CTTGTTCCAA ACTGGAACAA
       CAACCTCAGG TGCAAGAAAT TATCACCTGA GAACAAGGTT TGACCTTGTT

3051   CACTCAACCC TATCTCGGTC TATTCTTTTG ATTTATAAGG GATTTTGCCG
       GTGAGTTGGG ATAGAGCCAG ATAAGAAAAC TAAATATTCC CTAAAACGGC

3101   ATTTCGGCCT ATTGGTTAAA AAATGAGCTG ATTTAACAAA AATTTAACGC
       TAAAGCCGGA TAACCAATTT TTTACTCGAC TAAATTGTTT TTAAATTGCG

3151   GAATTTTAAC AAAATATTAA CGTTTACAAT TTAAATATTT GCTTATACAA
       CTTAAAATTG TTTTATAATT GCAAATGTTA AATTTATAAA CGAATATGTT

3201   TCTTCCTGTT TTTGGGGCTT TTCTGATTAT CAACCGGGGT ACATATGATT
       AGAAGGACAA AAACCCCGAA AAGACTAATA GTTGGCCCCA TGTATACTAA

                                                 ClaI
                                                 -------
3251   GACATGCTAG TTTTACGATT ACCGTTCATC GATTCTCTTG TTTGCTCCAG
       CTGTACGATC AAAATGCTAA TGGCAAGTAG CTAAGAGAAC AAACGAGGTC
```

Figure 4F


```
3301  ACTCTCAGGC AATGACCTGA TAGCCTTTTT AGACCTCTCA AAAATAGCTA
      TGAGAGTCCG TTACTGGACT ATCGGAAAAA TCTGGAGAGT TTTTATCGAT

3351  CCCTCTCCGG CATGAATTTA TCAGCTAGAA CGGTTGAATA TCATATTGAT
      GGGAGAGGCC GTACTTAAAT AGTCGATCTT GCCAACTTAT AGTATAACTA

3401  GGTGATTTGA CTGTCTCCGG CCTTTCTCAC CCGTTTGAAT CTTTACCTAC
      CCACTAAACT GACAGAGGCC GGAAAGAGTG GGCAAACTTA GAAATGGATG

3451  ACATTACTCA GGCATTGCAT TTAAAATATA TGAGGGTTCT AAAAATTTTT
      TGTAATGAGT CCGTAACGTA AATTTTATAT ACTCCCAAGA TTTTTAAAAA

3501  ATCCTTGCGT TGAAATAAAG GCTTCTCCCG CAAAAGTATT ACAGGGTCAT
      TAGGAACGCA ACTTTATTTC CGAAGAGGGC GTTTTCATAA TGTCCCAGTA

3551  AATGTTTTTG GTACAACCGA TTTAGCTTTA TGCTCTGAGG CTTTATTGCT
      TTACAAAAAC CATGTTGGCT AAATCGAAAT ACGAGACTCC GAAATAACGA

3601  TAATTTTGCT AATTCTTTGC CTTGCCTGTA TGATTTATTG GATGTTAACG
      ATTAAAACGA TTAAGAAACG GAACGGACAT ACTAAATAAC CTACAATTGC

3651  CTACTACTAT TAGTAGAATT GATGCCACCT TTTCAGCTCG CGCCCCAAAT
      GATGATGATA ATCATCTTAA CTACGGTGGA AAAGTCGAGC GCGGGGTTTA

3701  GAAAATATAG CTAAACAGGT TATTGACCAT TTGCGAAATG TATCTAATGG
      CTTTTATATC GATTTGTCCA ATAACTGGTA AACGCTTTAC ATAGATTACC

3751  TCAAACTAAA TCTACTCGTT CGCAGAATTG GGAATCAACT GTTACATGGA
      AGTTTGATTT AGATGAGCAA GCGTCTTAAC CCTTAGTTGA CAATGTACCT

3801  ATGAAACTTC CAGACACCGT ACTTTAGTTG CATATTTAAA ACATGTTGAG
      TACTTTGAAG GTCTGTGGCA TGAAATCAAC GTATAAATTT TGTACAACTC

3851  CTACAGCACC AGATCCAGCA ATTAAGCTCT AAGCCATCCG CAAAAATGAC
      GATGTCGTGG TCTAGGTCGT TAATTCGAGA TTCGGTAGGC GTTTTTACTG

3901  CTCTTATCAA AAGGAGCAAT TAAAGGTACT CTCTAATCCT GACCTGTTGG
      GAGAATAGTT TTCCTCGTTA ATTTCCATGA GAGATTAGGA CTGGACAACC

3951  AGTTTGCTTC CGGTCTGGTT CGCTTTGAAG CTCGAATTAA AACGCGATAT
      TCAAACGAAG GCCAGACCAA GCGAAACTTC GAGCTTAATT TTGCGCTATA

4001  TTGAAGTCTT TCGGGCTTCC TCTTAATCTT TTTGATGCAA TCCGCTTTGC
      AACTTCAGAA AGCCCGAAGG AGAATTAGAA AAACTACGTT AGGCGAAACG

4051  TTCTGACTAT AATAGTCAGG GTAAAGACCT GATTTTTGAT TTATGGTCAT
      AAGACTGATA TTATCAGTCC CATTTCTGGA CTAAAAACTA AATACCAGTA

4101  TCTCGTTTTC TGAACTGTTT AAAGCATTTG AGGGGGATTC AATGAATATT
      AGAGCAAAAG ACTTGACAAA TTTCGTAAAC TCCCCCTAAG TTACTTATAA
```

Figure 4G


```
4151  TATGACGATT CCGCAGTATT GGACGCTATC CAGTCTAAAC ATTTTACTAT
      ATACTGCTAA GGCGTCATAA CCTGCGATAG GTCAGATTTG TAAAATGATA

4201  TACCCCCTCT GGCAAAACTT CTTTTGCAAA AGCCTCTCGC TATTTTTGTT
      ATGGGGGAGA CCGTTTTGAA GAAAACGTTT TCGGAGAGCG ATAAAAACAA

4251  TTTATCGTCG TCTGGTAAAC GAGGGTTATG ATAGTGTTGC TCTTACTATG
      AAATAGCAGC AGACCATTTG CTCCCAATAC TATCACAACG AGAATGATAC

4301  CCTCGTAATT CCTTTTGGCG TTATGTATCT GCATTAGTTG AATGTGGTAT
      GGAGCATTAA GGAAAACCGC AATACATAGA CGTAATCAAC TTACACCATA

4351  TCCTAAATCT CAACTGATGA ATCTTTCTAC CTGTAATAAT GTTGTTCCGT
      AGGATTTAGA GTTGACTACT TAGAAAGATG GACATTATTA CAACAAGGCA

4401  TAGTTCGTTT TATTAACGTA GATTTTTCTT CCCAACGTCC TGACTGGTAT
      ATCAAGCAAA ATAATTGCAT CTAAAAAGAA GGGTTGCAGG ACTGACCATA

4451  AATGAGCCAG TTCTTAAAAT CGCATAAGGT AATTCACAAT GATTAAAGTT
      TTACTCGGTC AAGAATTTTA GCGTATTCCA TTAAGTGTTA CTAATTTCAA

4501  GAAATTAAAC CATCTCAAGC GCAATTCACT ACCCGTTCTG GTGTTTCTCG
      CTTTAATTTG GTAGAGTTCG CGTTAAGTGA TGGGCAAGAC CACAAAGAGC

4551  TCAGGGCAAG CCTTATTCAC TGAATGAGCA GCTTTGTTAC GTTGATTTGG
      AGTCCCGTTC GGAATAAGTG ACTTACTCGT CGAAACAATG CAACTAAACC

4601  GTAATGAATA TCCGGTGCTT GTCAAGATTA CTCTTGATGA AGGTCAGCCA
      CATTACTTAT AGGCCACGAA CAGTTCTAAT GAGAACTACT TCCAGTCGGT

4651  GCCTATGCGC CTGGTCTGTA CACCGTGCAT CTGTCCTCGT TCAAAGTTGG
      CGGATACGCG GACCAGACAT GTGGCACGTA GACAGGAGCA AGTTTCAACC

4701  TCAGTTCGGT TCTCTTATGA TTGACCGTCT GCGCCTCGTT CCGGCTAAGT
      AGTCAAGCCA AGAGAATACT AACTGGCAGA CGCGGAGCAA GGCCGATTCA

4751  AACATGGAGC AGGTCGCGGA TTTCGACACA ATTTATCAGG CGATGATACA
      TTGTACCTCG TCCAGCGCCT AAAGCTGTGT TAAATAGTCC GCTACTATGT

4801  AATCTCCGTT GTACTTTGTT TCGCGCTTGG TATAATCGCT GGGGGTCAAA
      TTAGAGGCAA CATGAAACAA AGCGCGAACC ATATTAGCGA CCCCCAGTTT

4851  GATGAGTGTT TTAGTGTATT CTTTCGCCTC TTTCGTTTTA GGTTGGTGCC
      CTACTCACAA AATCACATAA GAAAGCGGAG AAAGCAAAAT CCAACCACGG

4901  TTCGTAGTGG CATTACGTAT TTTACCCGTT TAATGGAAAC TTCCTCATGC
      AAGCATCACC GTAATGCATA AAATGGGCAA ATTACCTTTG AAGGAGTACG

4951  GTAAGTCTTT AGTCCTCAAA GCCTCCGTAG CCGTTGCTAC CCTCGTTCCG
      CATTCAGAAA TCAGGAGTTT CGGAGGCATC GGCAACGATG GGAGCAAGGC
```

Figure 4H


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5001   ATGCTGTCTT TCGCTGCTGA GGGTGACGAT CCCGCAAAAG CGGCCTTTGA
       TACGACAGAA AGCGACGACT CCCACTGCTA GGGCGTTTTC GCCGGAAACT

5051   CTCCCTGCAA GCCTCAGCGA CCGAATATAT CGGTTATGCG TGGGCGATGG
       GAGGGACGTT CGGAGTCGCT GGCTTATATA GCCAATACGC ACCCGCTACC

5101   TTGTTGTCAT TGTCGGCGCA ACTATCGGTA TCAAGCTGTT TAAGAAATTC
       AACAACAGTA ACAGCCGCGT TGATAGCCAT AGTTCGACAA ATTCTTTAAG

5151   ACCTCGAAAG CAAGCTGATA AAGGAGGTTT CTCGATCGAG ACGTTGGGTG
       TGGAGCTTTC GTTCGACTAT TTCCTCCAAA GAGCTAGCTC TGCAACCCAC

5201   AGGTTCCAAC TTTCACCATA ATGAAATAAG ATCACTACCG GGCGTATTTT
       TCCAAGGTTG AAAGTGGTAT TACTTTATTC TAGTGATGGC CCGCATAAAA

5251   TTGAGTTATC GAGATTTTCA GGAGCTAAGG AAGCTAAAAT GGAGAAAAAA
       AACTCAATAG CTCTAAAAGT CCTCGATTCC TTCGATTTTA CCTCTTTTTT

5301   ATCACTGGAT ATACCACCGT TGATATATCC CAATGGCATC GTAAAGAACA
       TAGTGACCTA TATGGTGGCA ACTATATAGG GTTACCGTAG CATTTCTTGT

5351   TTTTGAGGCA TTTCAGTCAG TTGCTCAATG TACCTATAAC CAGACCGTTC
       AAAACTCCGT AAAGTCAGTC AACGAGTTAC ATGGATATTG GTCTGGCAAG

5401   AGCTGGATAT TACGGCCTTT TTAAAGACCG TAAAGAAAAA TAAGCACAAG
       TCGACCTATA ATGCCGGAAA AATTTCTGGC ATTTCTTTTT ATTCGTGTTC

5451   TTTTATCCGG CCTTTATTCA CATTCTTGCC CGCCTGATGA ATGCTCATCC
       AAAATAGGCC GGAAATAAGT GTAAGAACGG GCGGACTACT TACGAGTAGG

5501   GGAGTTCCGT ATGGCAATGA AAGACGGTGA GCTGGTGATA TGGGATAGTG
       CCTCAAGGCA TACCGTTACT TTCTGCCACT CGACCACTAT ACCCTATCAC

5551   TTCACCCTTG TTACACCGTT TTCCATGAGC AAACTGAAAC GTTTTCATCG
       AAGTGGGAAC AATGTGGCAA AAGGTACTCG TTTGACTTTG CAAAAGTAGC

5601   CTCTGGAGTG AATACCACGA CGATTTCCGG CAGTTTCTAC ACATATATTC
       GAGACCTCAC TTATGGTGCT GCTAAAGGCC GTCAAAGATG TGTATATAAG

5651   GCAAGATGTG GCGTGTTACG GTGAAAACCT GGCCTATTTC CCTAAAGGGT
       CGTTCTACAC CGCACAATGC CACTTTTGGA CCGGATAAAG GGATTTCCCA

5701   TTATTGAGAA TATGTTTTTC GTCTCAGCCA ATCCCTGGGT GAGTTTCACC
       AATAACTCTT ATACAAAAAG CAGAGTCGGT TAGGGACCCA CTCAAAGTGG

5751   AGTTTTGATT TAAACGTAGC CAATATGGAC AACTTCTTCG CCCCCGTTTT
       TCAAAACTAA ATTTGCATCG GTTATACCTG TTGAAGAAGC GGGGGCAAAA

5801   CACTATGGGC AAATATTATA CGCAAGGCGA CAAGGTGCTG ATGCCGCTGG
       GTGATACCCG TTTATAATAT GCGTTCCGCT GTTCCACGAC TACGGCGACC
```

Figure 4I


```
5851   CGATTCAGGT TCATCATGCC GTTTGTGATG GCTTCCATGT CGGCAGAATG
       GCTAAGTCCA AGTAGTACGG CAAACACTAC CGAAGGTACA GCCGTCTTAC

5901   CTTAATGAAT TACAACAGTA CTGCGATGAG TGGCAGGGCG GGGCGTAATT
       GAATTACTTA ATGTTGTCAT GACGCTACTC ACCGTCCCGC CCCGCATTAA

5951   TTTTTAAGGC AGTTATTGGT GCCCTTAAAC GCCTGGTGCT AGCCTGAGGC
       AAAAATTCCG TCAATAACCA CGGGAATTTG CGGACCACGA TCGGACTCCG

6001   CAGTTTGCTC AGGCTCTCCC CGTGGAGGTA ATAATTGCTC GACCGATAAA
       GTCAAACGAG TCCGAGAGGG GCACCTCCAT TATTAACGAG CTGGCTATTT

6051   AGCGGCTTCC TGACAGGAGG CCGTTTTGTT TTGCAGCCCA CCTCAACGCA
       TCGCCGAAGG ACTGTCCTCC GGCAAAACAA AACGTCGGGT GGAGTTGCGT

6101   ATTAATGTGA GTTAGCTCAC TCATTAGGCA CCCCAGGCTT TACACTTTAT
       TAATTACACT CAATCGAGTG AGTAATCCGT GGGGTCCGAA ATGTGAAATA

6151   GCTTCCGGCT CGTATGTTGT GTGGAATTGT GAGCGGATAA CAATTTCACA
       CGAAGGCCGA GCATACAACA CACCTTAACA CTCGCCTATT GTTAAAGTGT

6201   CAGGAAACAG CTATGACCAT GATTACGAAT TTCTAGATAA CGAGGGCAAA
       GTCCTTTGTC GATACTGGTA CTAATGCTTA AAGATCTATT GCTCCCGTTT

6251   AAATGAAAAA GACAGCTATC GCGATTGCAG TGGCACTGGC TGGTTTCGCT
       TTTACTTTTT CTGTCGATAG CGCTAACGTC ACCGTGACCG ACCAAAGCGA

6301   ACCGTAGCGC AGGCCGACTA CAAAGATGTC GACTGTATTG TTTATCATGC
       TGGCATCGCG TCCGGCTGAT GTTTCTACAG CTGACATAAC AAATAGTACG

                                                  BamHI EcoRI
                                                  ------------
6351   TCATTATCTT GTTGCTAAGT GTGGTGGTGG AGGATCCGAA TTCAATGCTG
       AGTAATAGAA CAACGATTCA CACCACCACC TCCTAGGCTT AAGTTACGAC

6401   GCGGCGGCTC TGGTGGTGGT TCTGGTGGCG GCTCTGAGGG TGGTGGCTCT
       CGCCGCCGAG ACCACCACCA AGACCACCGC CGAGACTCCC ACCACCGAGA

6451   GAGGGTGGCG GTTCTGAGGG TGGCGGCTCT GAGGGAGGCG GTTCCGGTGG
       CTCCCACCGC CAAGACTCCC ACCGCCGAGA CTCCCTCCGC CAAGGCCACC

6501   TGGCTCTGGT TCCGGTGATT TTGATTATGA AAAGATGGCA AACGCTAATA
       ACCGAGACCA AGGCCACTAA AACTAATACT TTTCTACCGT TTGCGATTAT

6551   AGGGGGCTAT GACCGAAAAT GCCGATGAAA ACGCGCTACA GTCTGACGCT
       TCCCCCGATA CTGGCTTTTA CGGCTACTTT TGCGCGATGT CAGACTGCGA
```

Figure 4J

ClaI

```
6601  AAAGGCAAAC TTGATTCTGT CGCTACTGAT TACGGTGCTG CTATCGATGG
      TTTCCGTTTG AACTAAGACA GCGATGACTA ATGCCACGAC GATAGCTACC

6651  TTTCATTGGT GACGTTTCCG GCCTTGCTAA TGGTAATGGT GCTACTGGTG
      AAAGTAACCA CTGCAAAGGC CGGAACGATT ACCATTACCA CGATGACCAC

6701  ATTTTGCTGG CTCTAATTCC CAAATGGCTC AAGTCGGTGA CGGTGATAAT
      TAAAACGACC GAGATTAAGG GTTTACCGAG TTCAGCCACT GCCACTATTA

6751  TCACCTTTAA TGAATAATTT CCGTCAATAT TTACCTTCCC TCCCTCAATC
      AGTGGAAATT ACTTATTAAA GGCAGTTATA AATGGAAGGG AGGGAGTTAG

6801  GGTTGAATGT CGCCCTTTTG TCTTTGGCGC TGGTAAACCA TATGAATTTT
      CCAACTTACA GCGGGAAAAC AGAAACCGCG ACCATTTGGT ATACTTAAAA

6851  CTATTGATTG TGACAAAATA AACTTATTCC GTGGTGTCTT TGCGTTTCTT
      GATAACTAAC ACTGTTTTAT TTGAATAAGG CACCACAGAA ACGCAAAGAA

6901  TTATATGTTG CCACCTTTAT GTATGTATTT TCTACGTTTG CTAACATACT
      AATATACAAC GGTGGAAATA CATACATAAA AGATGCAAAC GATTGTATGA
```

HindIII

```
6951  GCGTAATAAG GAGTCTTGAT A
      CGCATTATTC CTCAGAACTA T
```

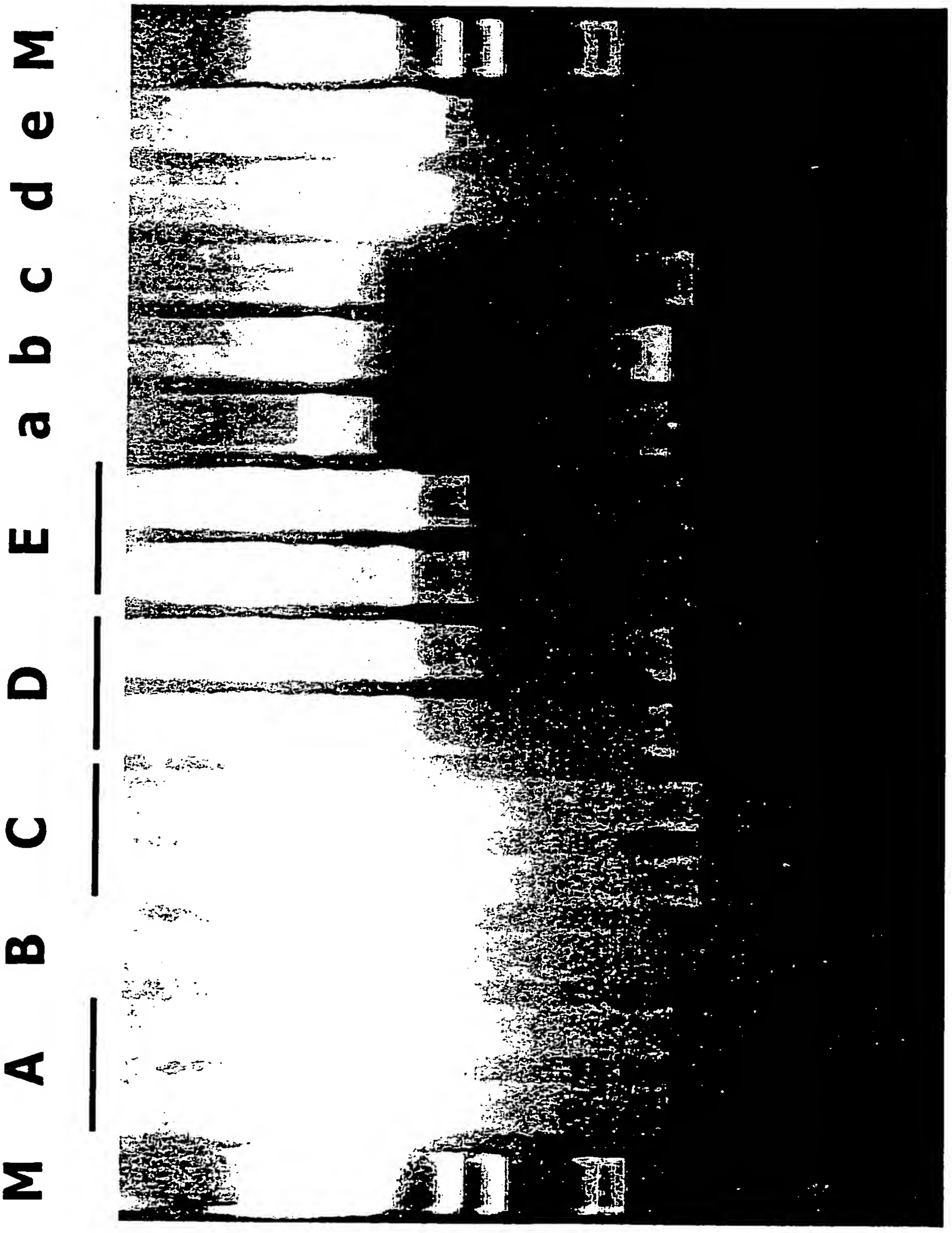

Figure 5

Figure 6

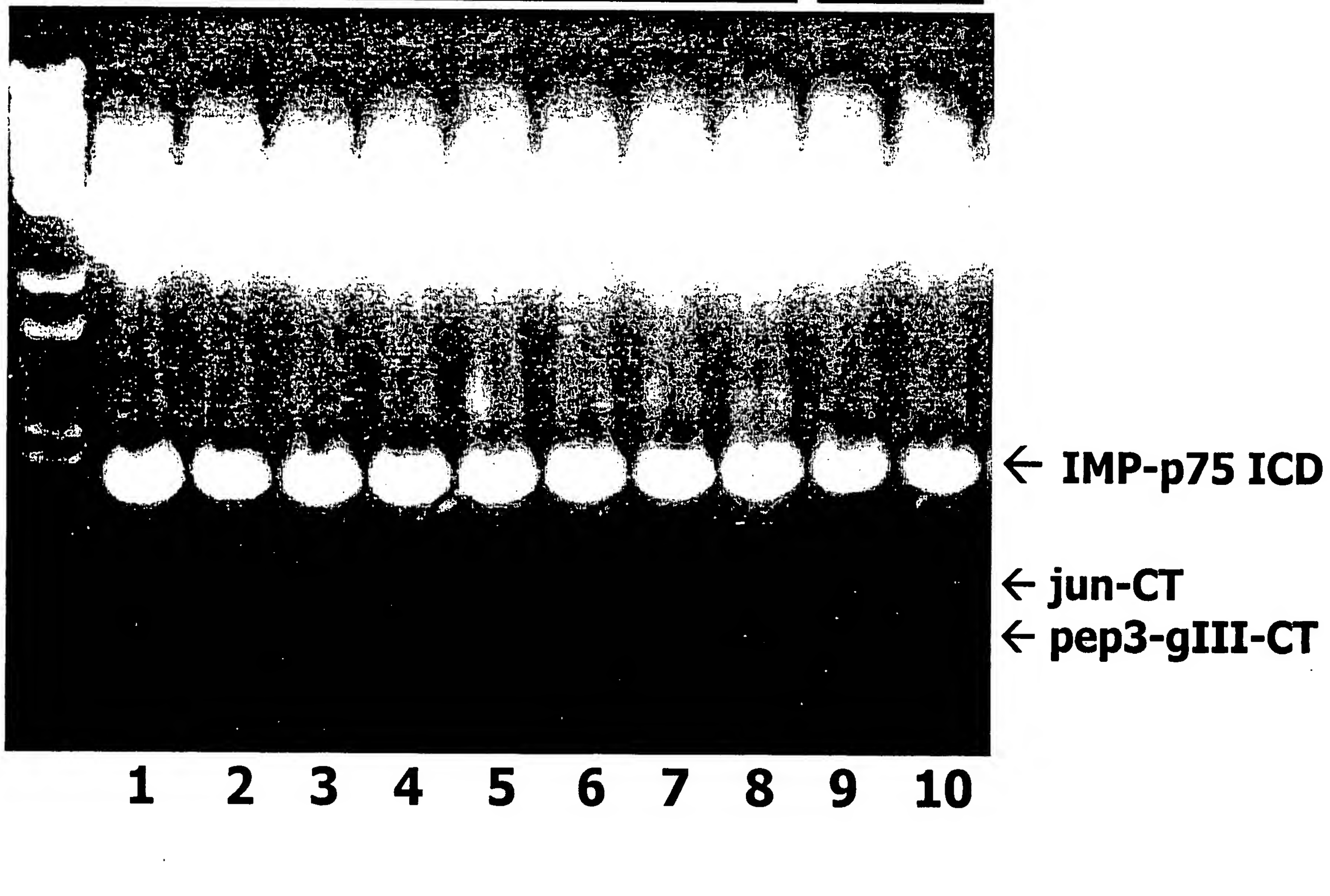

Figure 7

dilution factor		transductants
pep3/p75ICD	jun/p75ICD	(t.u./ml)*
1	pos. control -	6×10^5
-	neg. control 1	0
1	10^2	1.2×10^4
1	10^3	8.6×10^2
1	10^4	1.2×10^2
1	10^5	12#
1	10^6	1.2#
1	10^7	0.12#

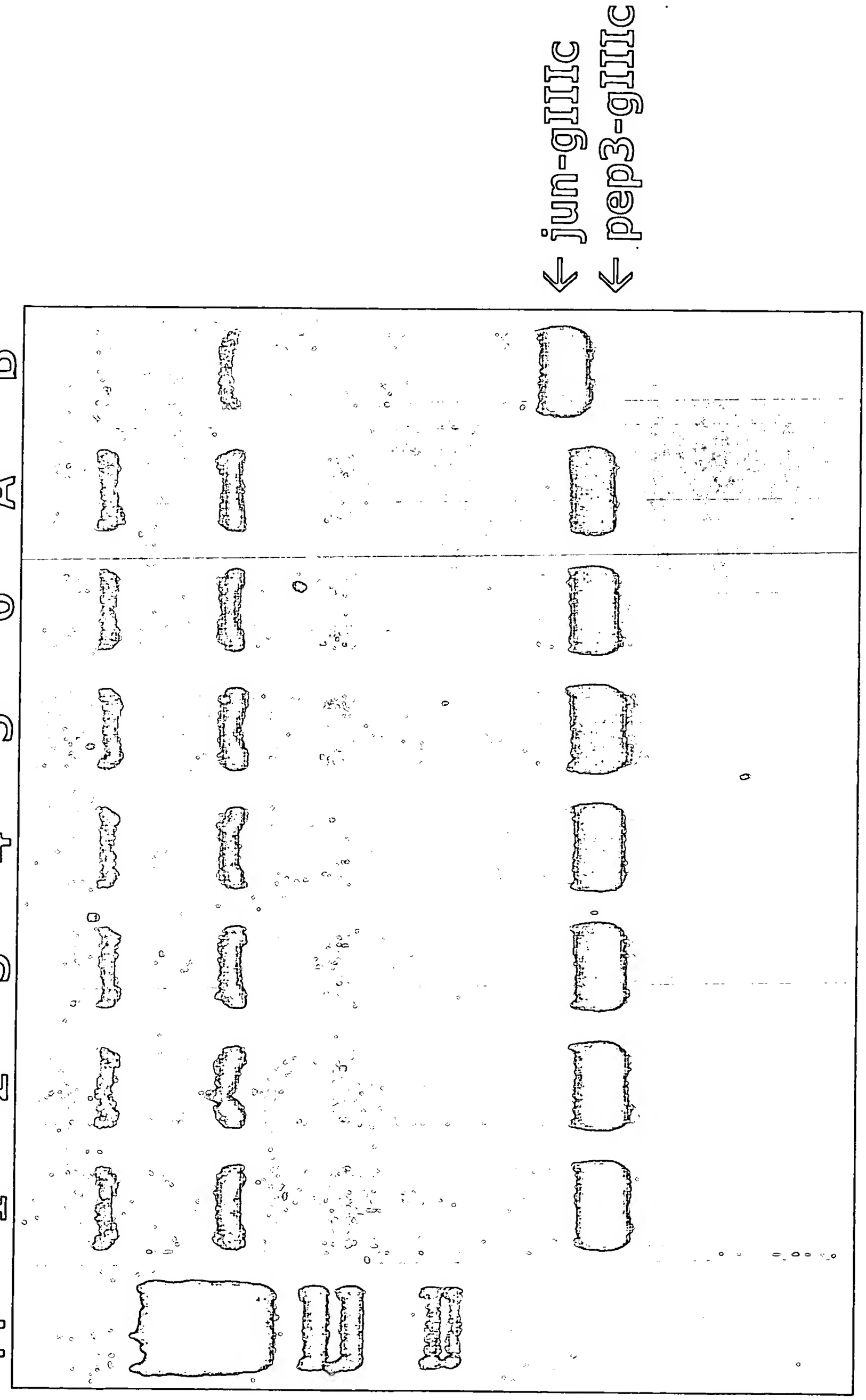

Figure 8

Figure 9

	c	a	1 2	a	c	c/a
$1.8x10^2$	$1.2x10^6$	$4.4x10^2$	{ }	$1.3x10^6$	$4.2x10^5$	$6.2x10^3$
0	$2.4x10^5$	40	{ }	$2.5x10^6$	$8.0x10^5$	10^2
0	$3.7x10^7$	$2.2x10^2$	{ }	$2.8x10^5$	$0.6x10^5$	0

Fritz RUDERT et al.
"Novel Method and Phage for the Identification of Nucleic Acid Sequences Encoding...
"U.S. Application No. 10/634,862
REPLACEMENT DRAWINGS

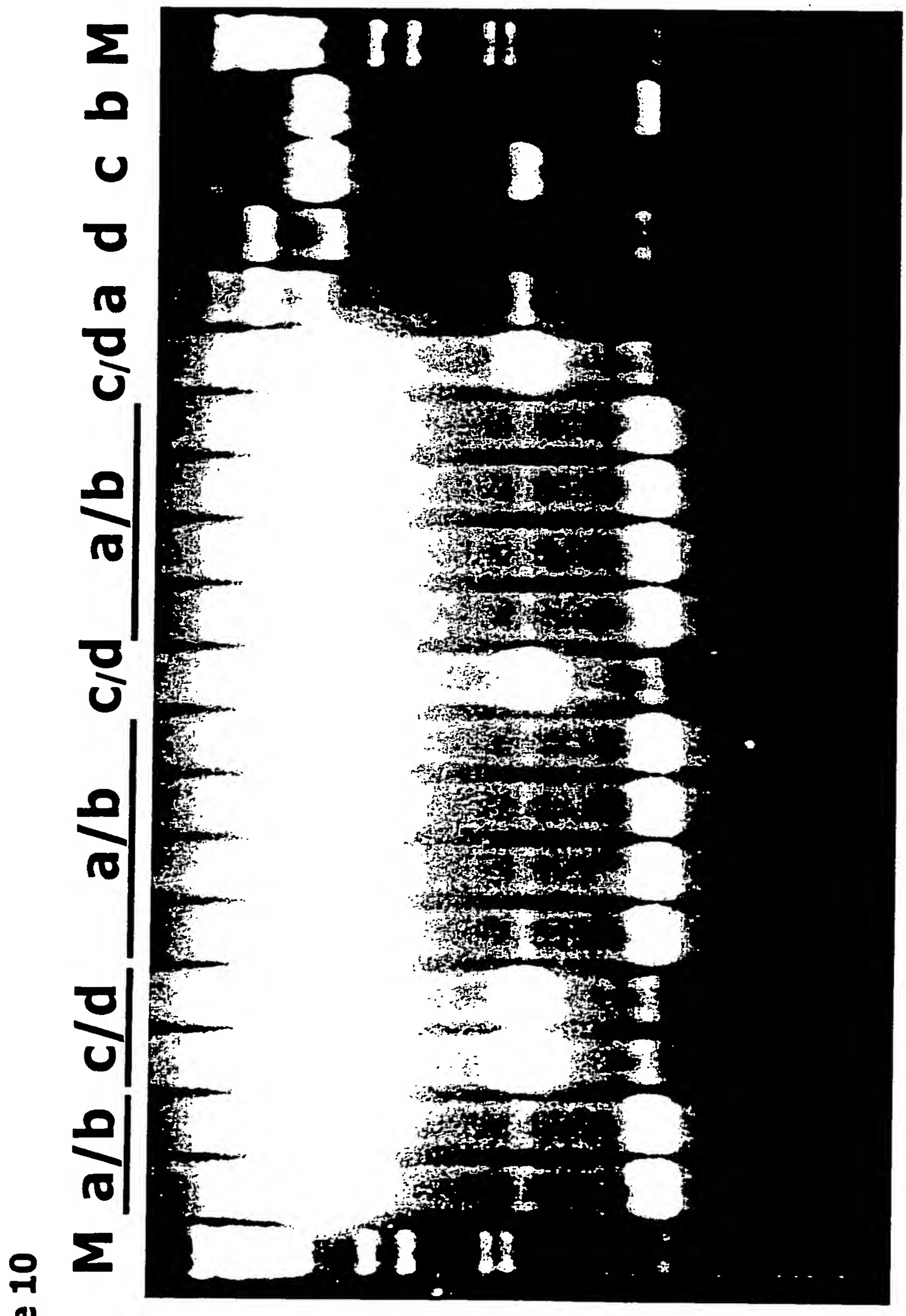

Figure 10